DTNSRDC/SPD-0895-01

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DAVID W. TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER

Bethesda, Md. 20084

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ASR-14 SHIP AND TOW POINT MOTION PREDICTIONS

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T. R. Applebee
and
A. E. Baitis

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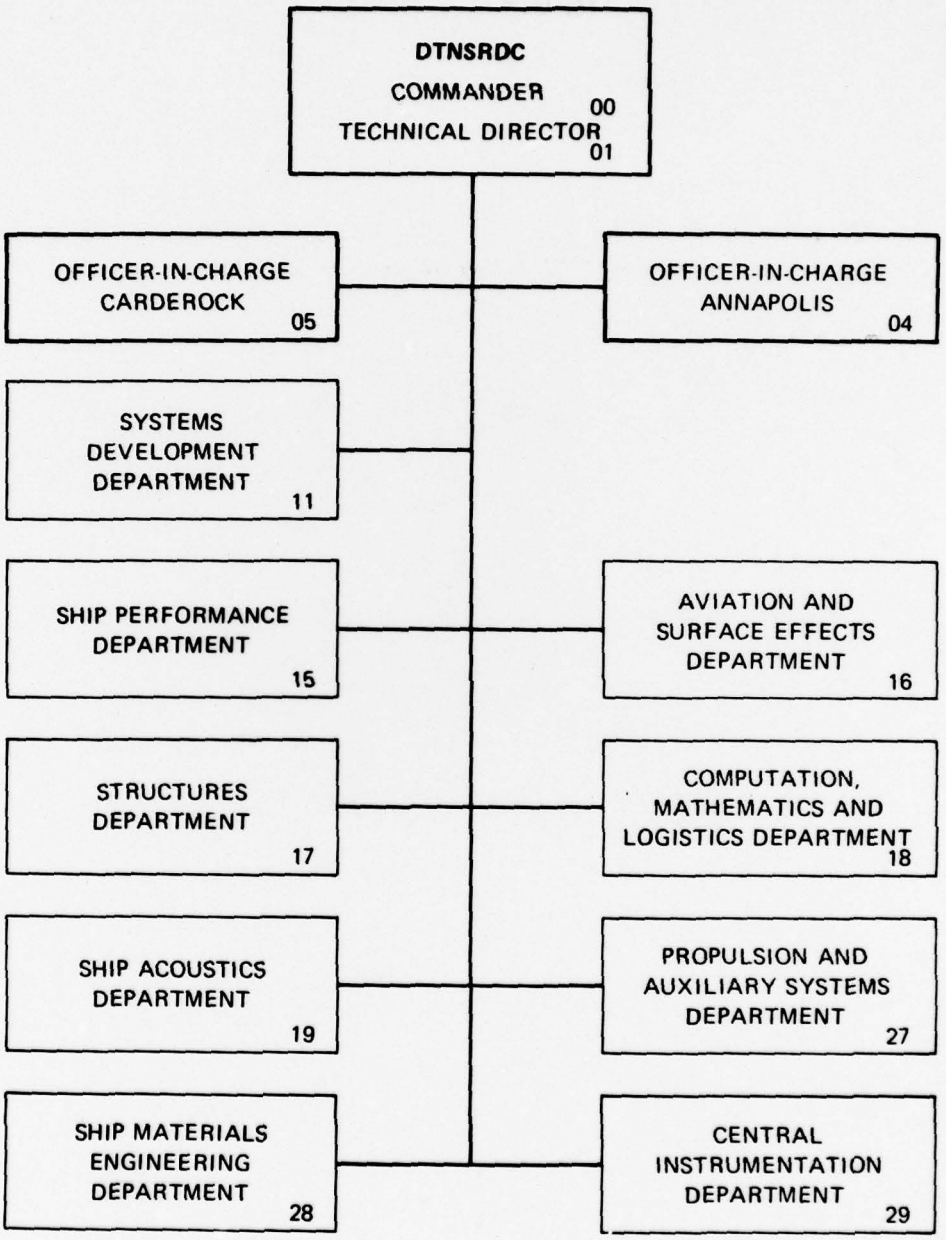

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REPORT DOCUMENTATION PAGE

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1. REPORT NUMBER: DTNSRDC/SPD-0895-01	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE *(and Subtitle)*: ASR-14 SHIP AND TOW POINT MOTION PREDICTIONS,	5. TYPE OF REPORT & PERIOD COVERED: Final rept.
6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s): T. R. Applebee and A. E. Baitis	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: David W. Taylor Naval Ship R&D Center, Ship Performance Department, Bethesda, Maryland 20084	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: O&MN, Work Unit No. 1-1568-820
11. CONTROLLING OFFICE NAME AND ADDRESS: Naval Ship Engineering Center, Washington, D. C. 20362	12. REPORT DATE: April 1979
	13. NUMBER OF PAGES: 81
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*	15. SECURITY CLASS. *(of this report)*: Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Ship Motion Prediction
Longitudinal Displacement
Tow Point
Speed Polar Plots

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

Surge and longitudinal displacement at a cable tow position are predicted for a Submarine Rescue Ship (ASR) in long- and short-crested seas. Results are presented in the form of speed polars, but interpretation must be approached with caution in light of highly restrictive assumptions.

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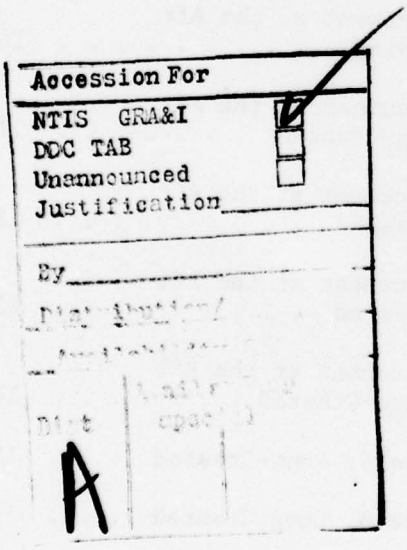

ABSTRACT

Surge and longitudinal displacement at a cable tow position are predicted for a Submarine Rescue Ship (ASR) in long- and short-crested seas. Results are presented in the form of speed polars, but interpretation must be approached with caution in light of highly restrictive assumptions.

ADMINISTRATIVE INFORMATION

This investigation was funded by the Naval Ship Engineering Center (NAVSEC) under Work Request N6519779WR91556. The work is identified at the David W. Taylor Naval Ship Research and Development Center (DTNSRDC) as Work Unit Number 1-1568-820.

INTRODUCTION

In an effort to determine the excursion of a Submarine Rescue Ship (ASR) at an aft tow position, DTNSRDC implemented its Ship-Motion and Sea-Load Program[1*] (SMSL) and the SHREDS[2] program to obtain a root mean square (RMS) ship motion data base for all headings and speeds. Both long-crested and short-crested seaways were investigated for significant wave heights of 10, 15, and 20 feet and a modal period of 9 seconds.

The predicted results are presented in the form of speed polar plots of longitudinal tow point motion and RMS tables of the ship motion data base. It is noted that the assumptions relating limiting longitudinal tow point motions to the calculated RMS longitudinal motions are of questionable validity. These assumptions are particularly questionable in seas aft of the beam at the higher sea states. Inadequacies in the present ship motion theory do not permit more accurate longitudinal ship motion predictions to be made. Similarly, the measurement accuracies of transducers for longitudinal ship motions have made typical full-scale data unavailable.

The use of the longitudinal displacement speed polar plots for determining operating limits in speed or heading for cable tension loads is subject to the above-mentioned assumptions. Furthermore, it should be pointed out that for the case of "impact" cable loading, the longitudinal

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*A complete listing of references is given on page 5.

velocity and acceleration needs to be considered because the ship tow point does not move instantaneously.

Caution in the interpretation of tow point motions in the horizontal plane is therefore recommended.

CALCULATION CONDITIONS

Because of the inability to obtain the most recent modifications to the hull of the ASR-14, an earlier version of the hull lines was used. Table 1 presents the computed ship particulars and Figure 1 the computed ship lines for this version of the ASR.

Three long-crested and short-crested Bretschneider[3] seaways based on worldwide heavy weather operations (Reference 4) were selected. These seaways, identified as Sea States 5, 6, and high 6, correspond to significant wave heights of 10, 15, and 20 feet, respectively, and a modal period of 9 seconds. Short-cresting was represented by a cosine square spreading function as recommended in Reference 5.

The RMS data base calculated by SHREDS includes surge and the longitudinal displacement at a tow location 8 feet aft of the aft perpendicular, on centerline, and 26.07 feet above the keel.

ASSUMPTIONS

It is understood that tow point motions affect the tension in the cable, although the individual x,y,z components of these motions do not equally influence cable tension. In fact, based on a discussion with NAVSEC personnel, it is understood that the x-component or longitudinal tow point motion is the only significant component of ship motion that affects cable tension. As a result, only this component is presented in polar plot form.

Motions were calculated for a ship traveling on a fixed course without rudder activity. Thus a critical assumption affecting the interpretation of the results is that the ship's horizontal excursions are isolated from and independent of helm control. Thus, the ship is assumed to travel without yaw or course correction on the selected heading relative to the

sea. Clearly, this assumption becomes unrealistic* once seas of sufficient height are encountered at headings other than head or following seas.

Operator control of the rudder in trying to maintain a base ship course, particularly for the seaways investigated, produces significant yaw motion. Figure 2 illustrates such operator control on a 3000-ton USCG cutter of typical destroyer hull form in mild 5 to 7-foot, 7-second modal period beam seas. Such operator-induced yaw motion in turn modifies the ship's forward speed and longitudinal motion response as well as the other ship responses. Rudder or helm control thus results in yaw-surge motion coupling, the importance of which increases as sea state increases, particularly when ship heading is aft of the beam.

It has been assumed that the operator steering activity represents one-half of the total longitudinal tow point motions for the very large response amplitudes of interest. These large motion amplitudes, in turn, represent limiting motion levels. Furthermore, it has been assumed that the limiting motion level of concern is statistically related to the calculated RMS motion. The highest expected value in 1000 successive motion amplitudes is this assumed limiting design motion level.

The limiting longitudinal motions presented in the speed polar plots represent a value twice the highest expected value in 1000 successive longitudinal motion amplitudes, i.e., 2 x 3.72 x RMS.

RESULTS

Figures 3 through 8 present the speed polar plots for the aft tow position, while Figures 9 through 14 present the surge speed polars. Long-crested results for each point are presented first, followed by the short-crested polar plots. Note that all speed polar contours are dimensioned in feet.

The appendix contains the ship motion data base in the form of RMS/TOE tables for unit significant wave height and modal periods of 7, 9, 11, . . , 21 seconds. The tables present the displacements, velocities, and accelerations for the six-degrees-of-freedom at the origin and for longitudinal, lateral, and vertical motions at the aft tow position.

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*See Figure 2 time between 650 and 725 seconds.

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1. Meyers, W.G. et al., "Manual - NSRDC Ship-Motion and Sea-Load Computer Program," Naval Ship Research and Development Center Report 3376 (Feb 1975).

2. Gentile, Dana M. and Joseph E. Whalen, "User's Manual for Program SHREDS: A Computer Program to Provide A Ship's Response in a Directional Seaway," ORI Technical Report 1280 (Dec 1977).

3. Bretschneider, C.L., "Wave Variability and Wave Spectra for Wind Generated Gravity Waves," Department of the Army, Corps of Engineers Technical Memorandum 118 (1959).

4. Bales, Susan L. and Edward W. Foley, "Development of A Heavy Weather Operator Guidance Catalog for FF-1052 Class Ships," David W. Taylor Naval Ship Research and Development Center, Ship Performance Department Report DTNSRDC/SPD-0773-02 (Feb 1979).

5. Baitis, A.E. et al., "Design Acceleration and Ship Motions for LNG Cargo Tanks," Presented at 10th Naval Hydrodynamics Symposium, Massachusetts Institute of Technology (Jun 1974).

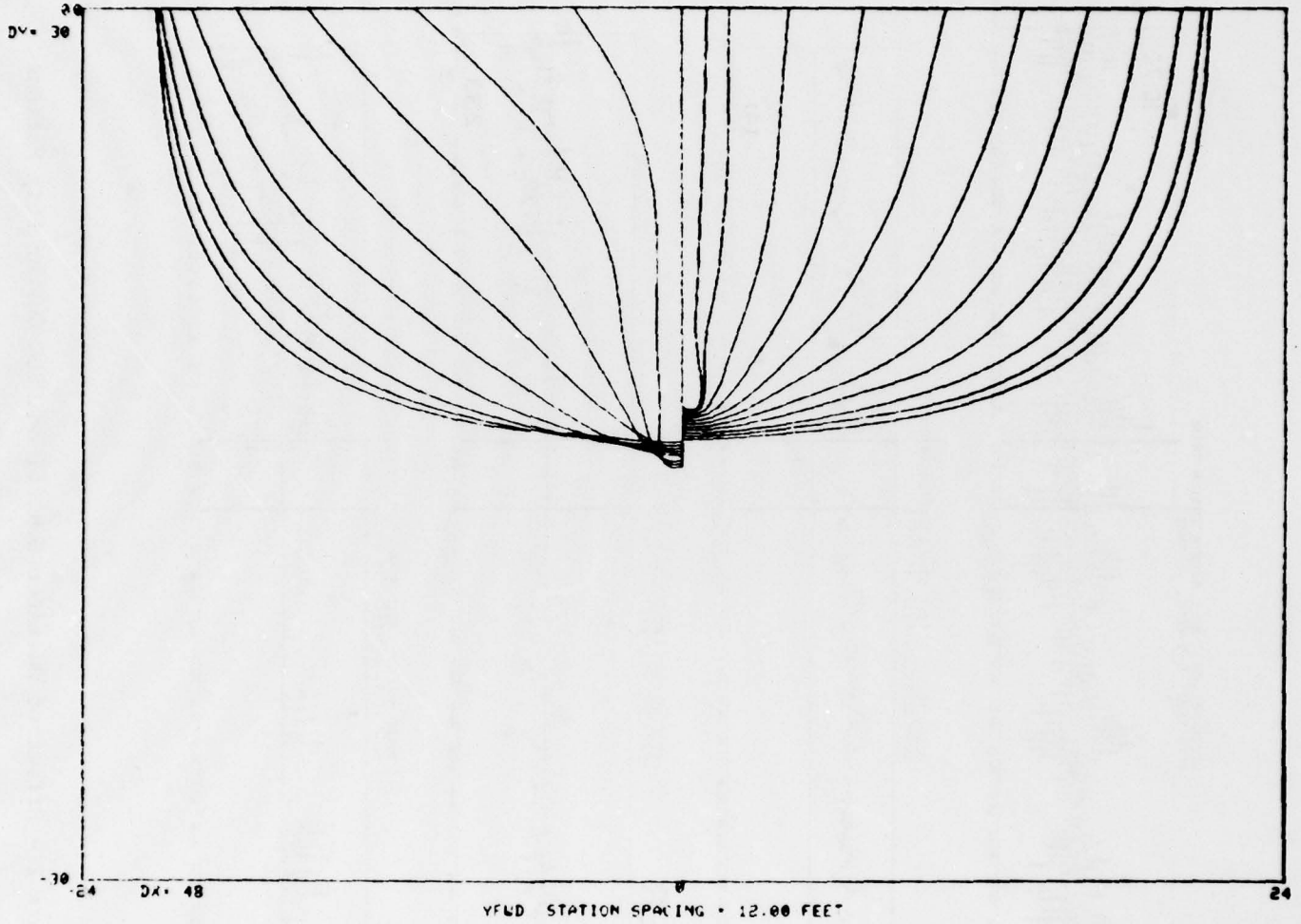

Figure 1 - Computed Ship Lines for the ASR

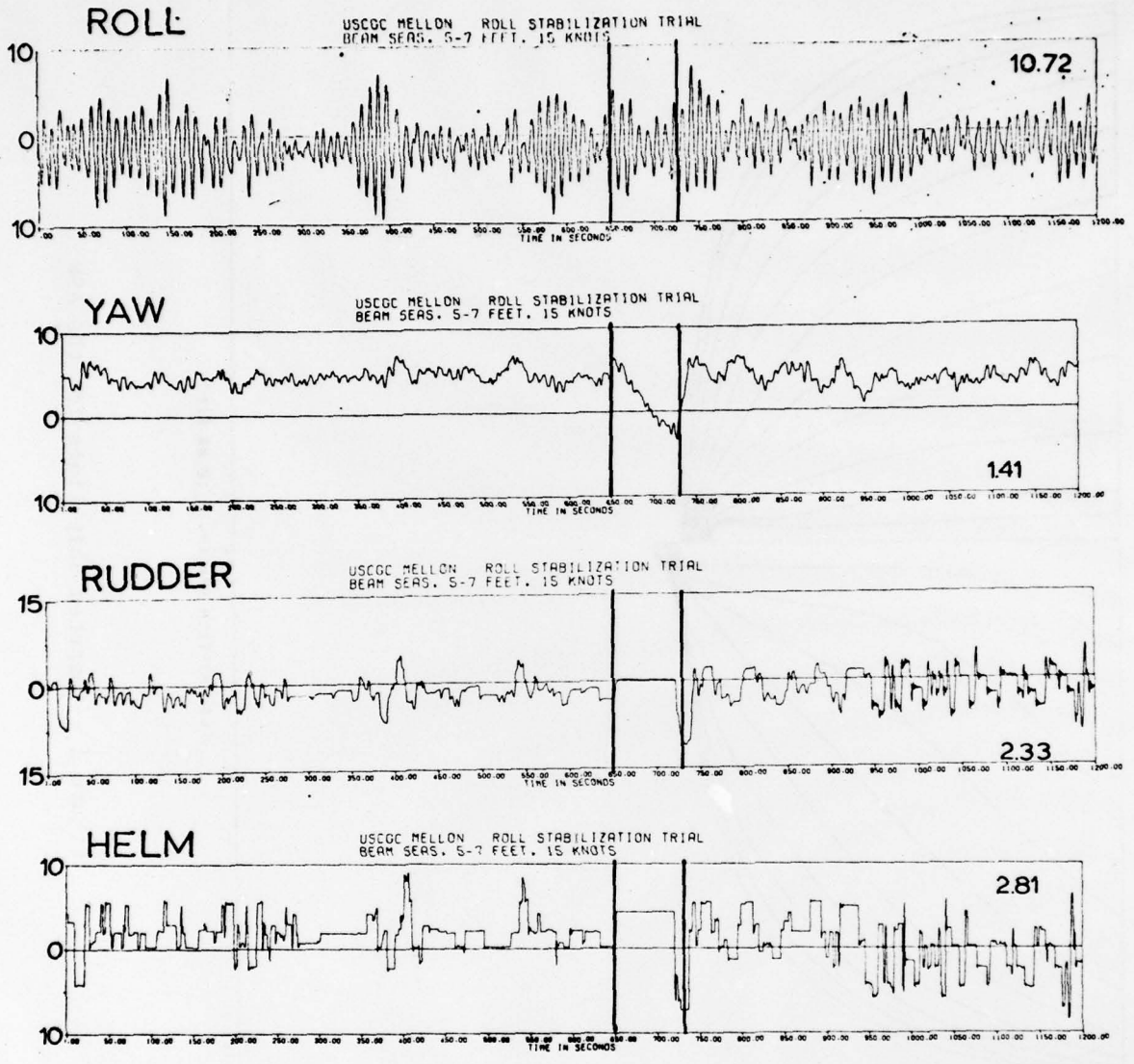

Figure 2 - Effect of Operator Control on USCG Cutter Ship Motions

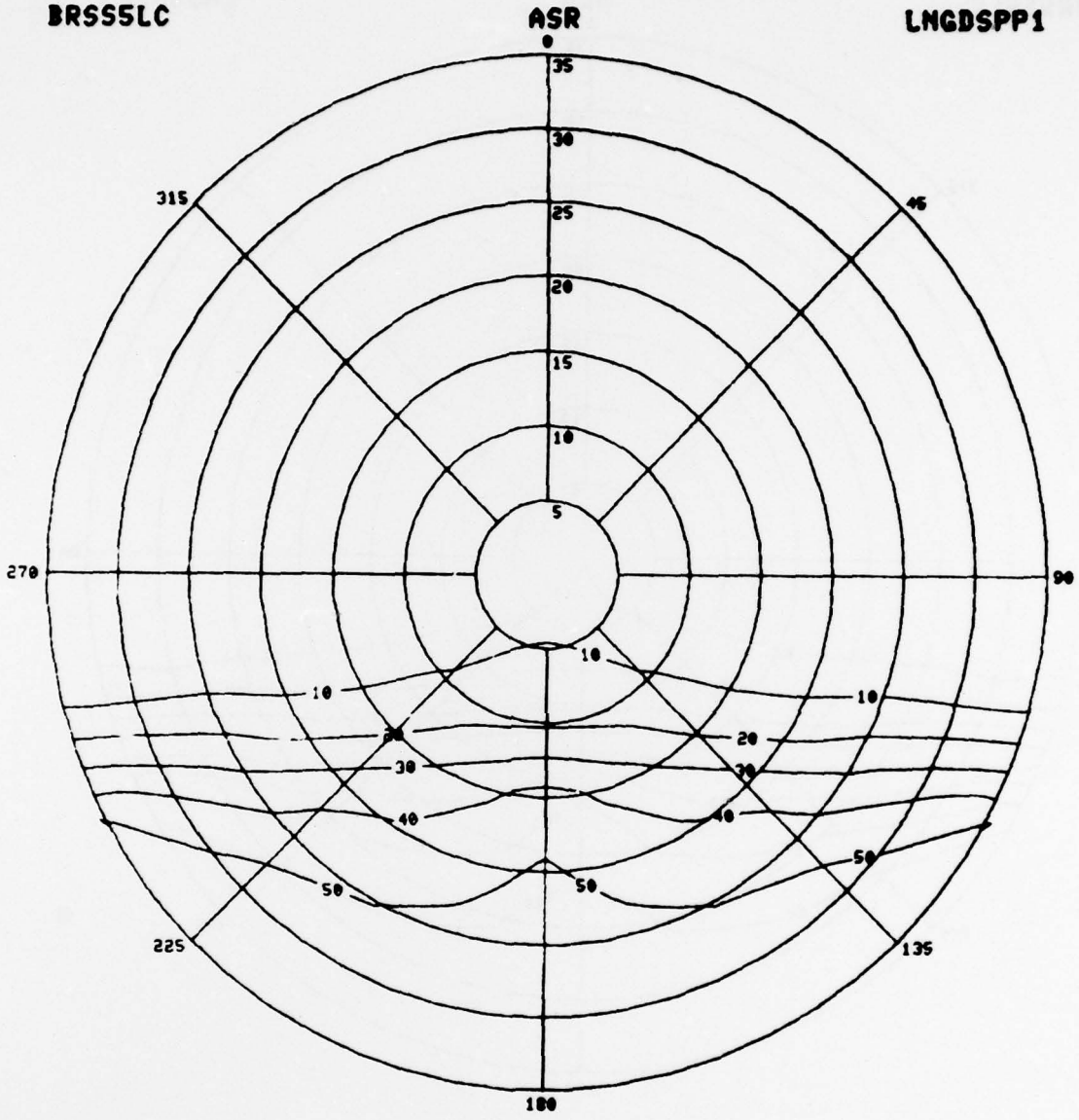

Figure 3 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a Sea State 5, Long-Crested

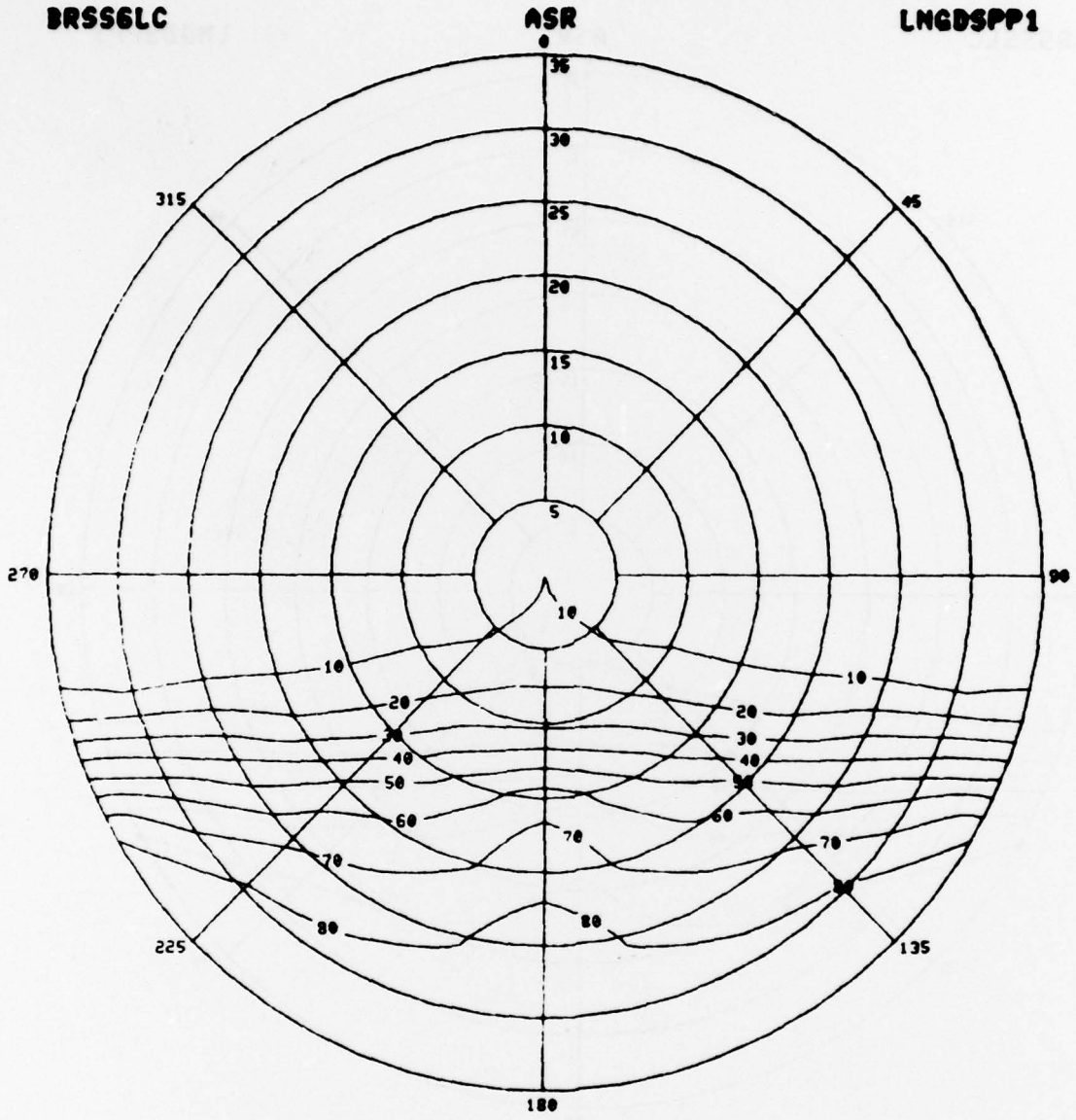

Figure 4 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a Sea State 6, Long-Crested

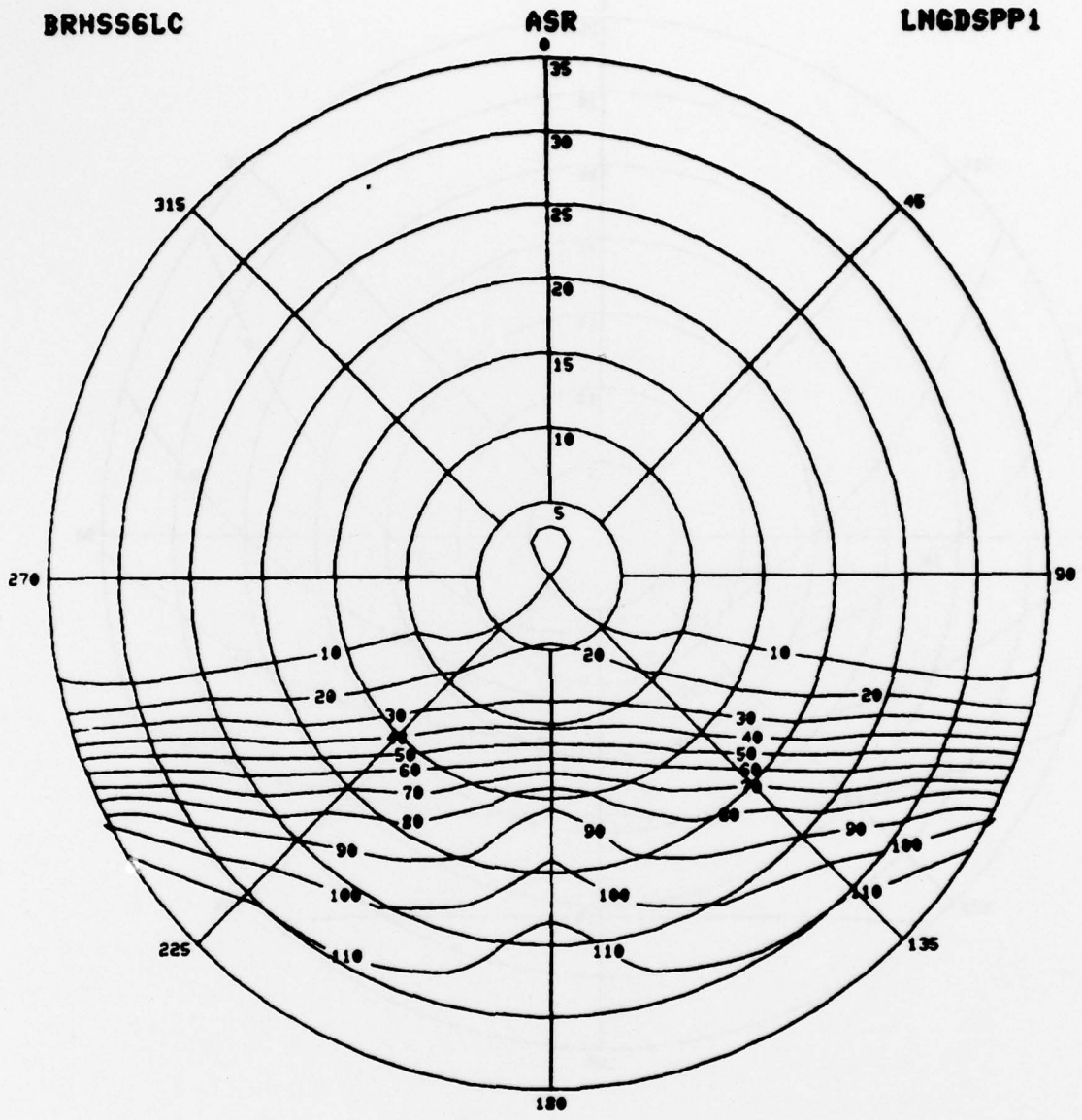

Figure 5 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a High Sea State 6, Long-Crested

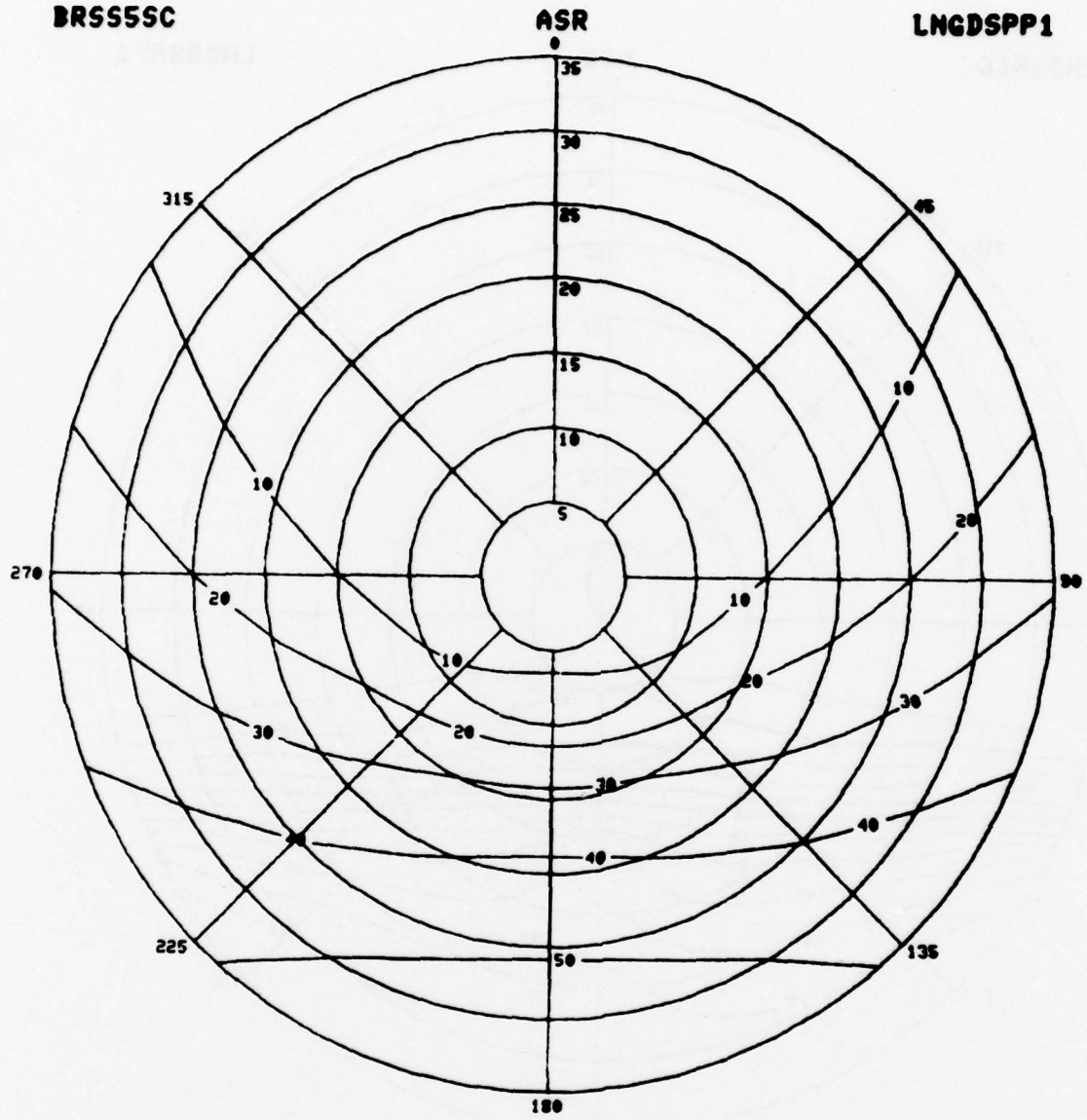

Figure 6 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a Sea State 5, Short-Crested

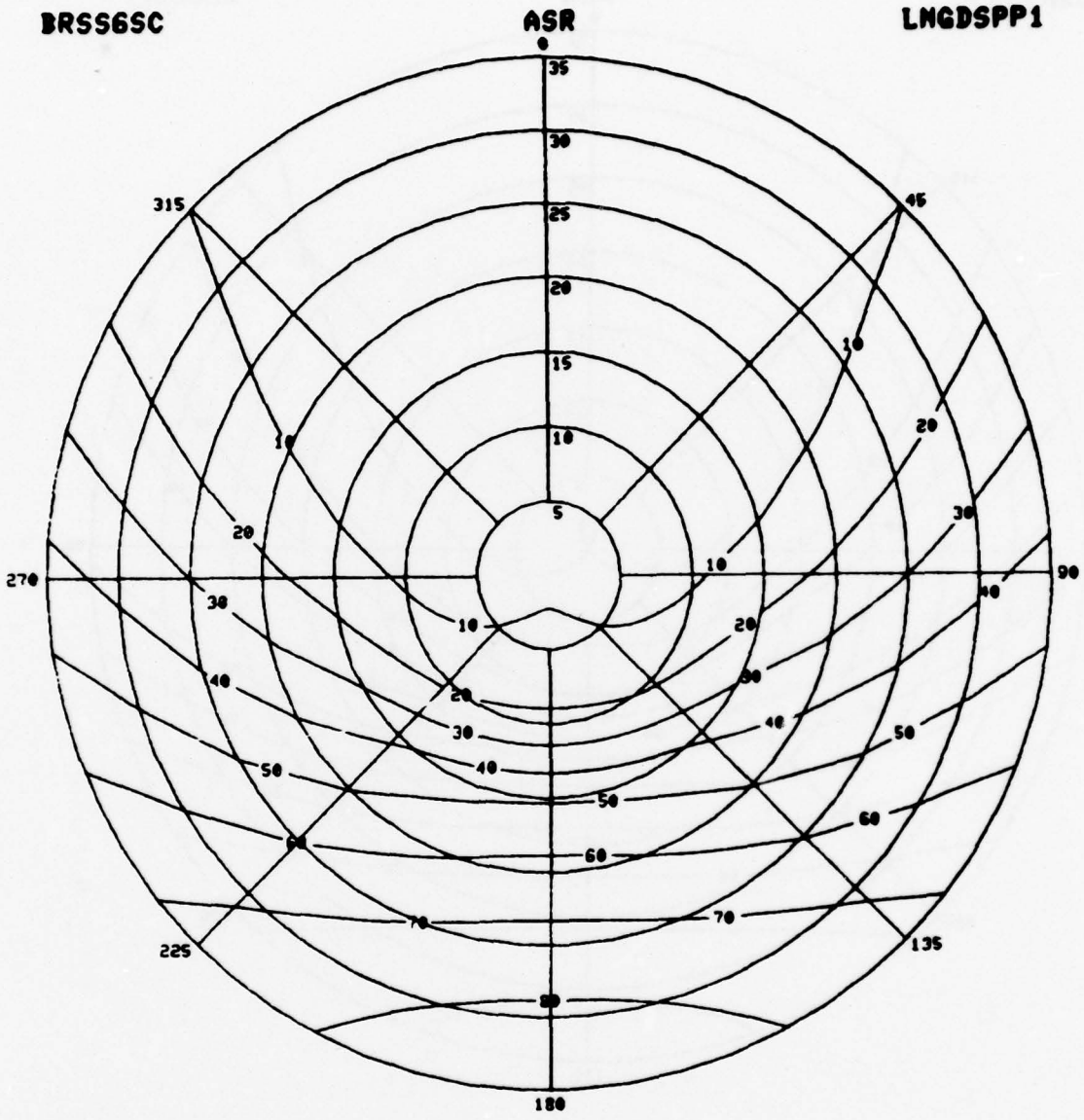

Figure 7 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a Sea State 6, Short-Crested

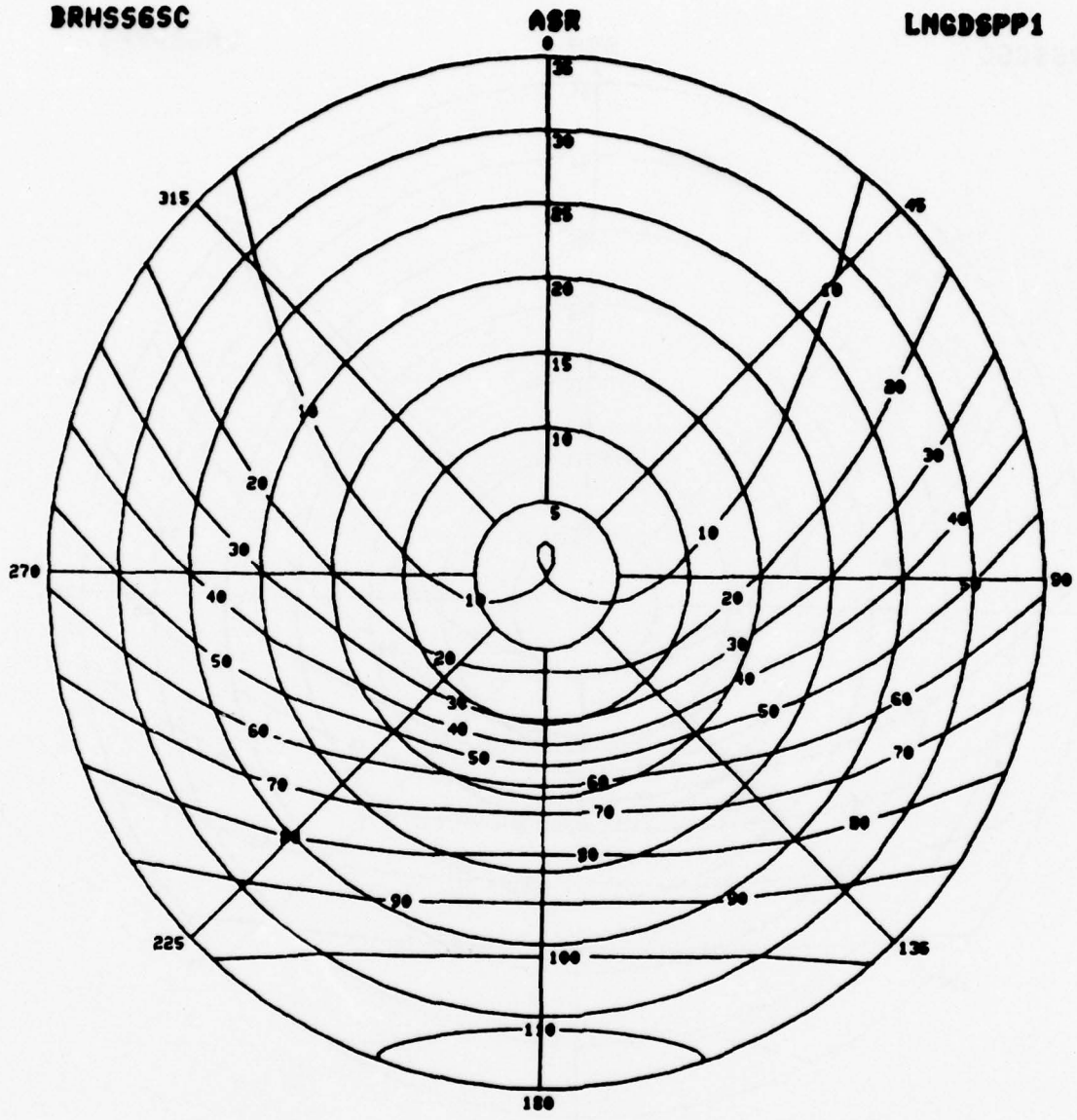

Figure 8 - Speed Polar Plot of Longitudinal Displacement at the Aft Tow Position in a High Sea State 6, Short-Crested

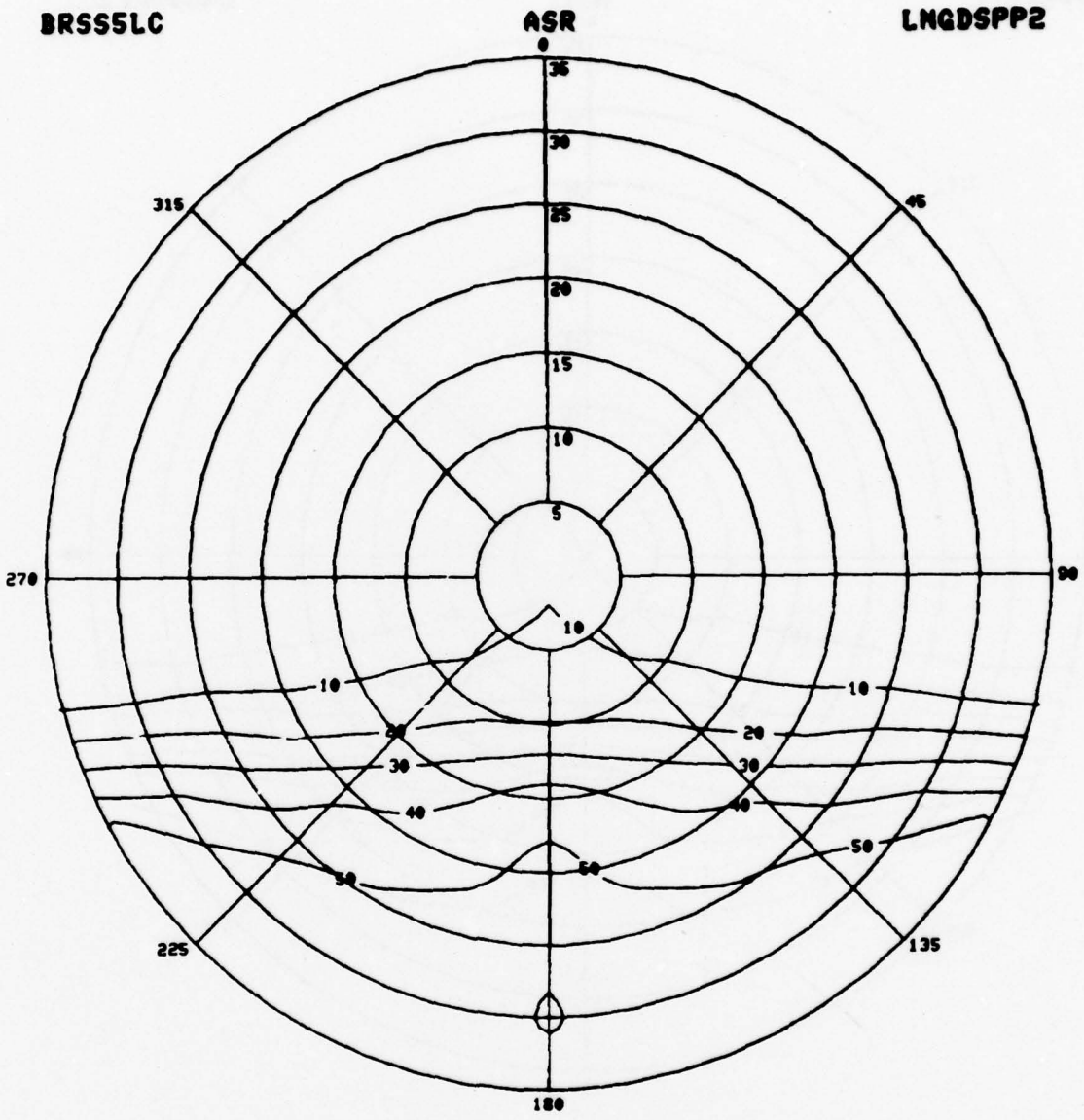

Figure 9 - Speed Polar Plot of Surge in a Sea State 5, Long-Crested

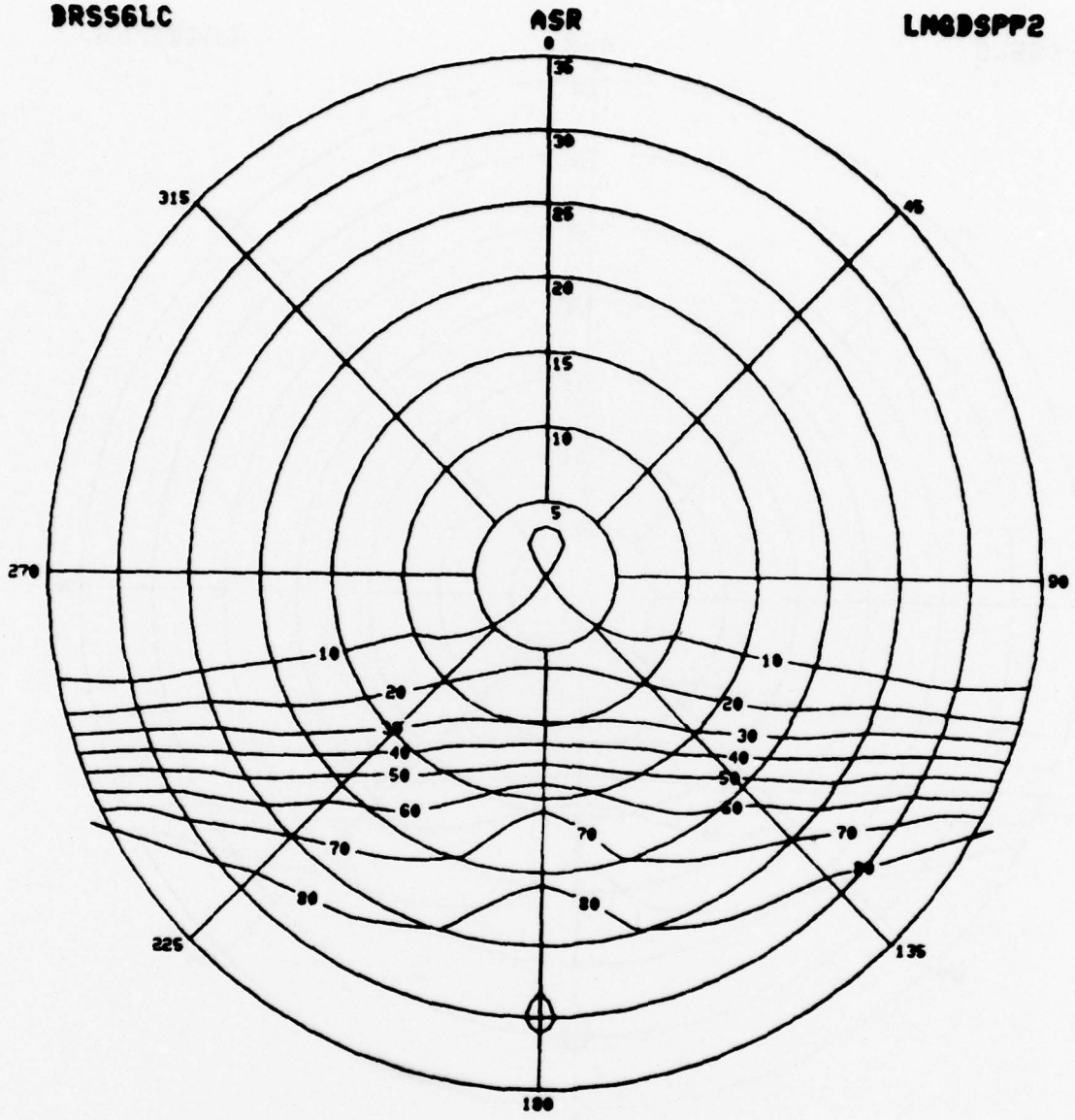

Figure 10 - Speed Polar Plot of Surge in a Sea State 6, Long-Crested

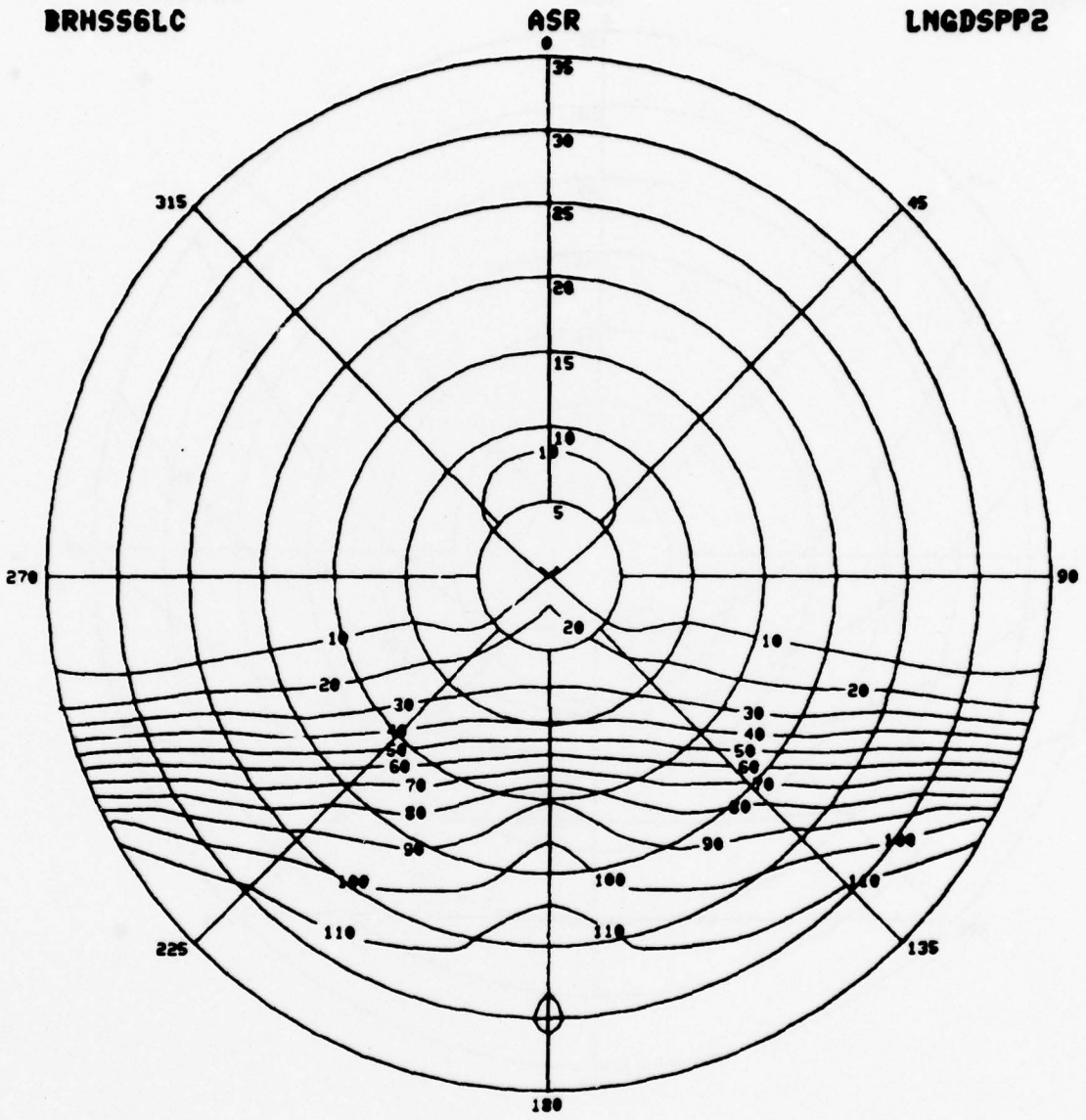

Figure 11 - Speed Polar Plot of Surge in a High Sea State 6, Long-Crested

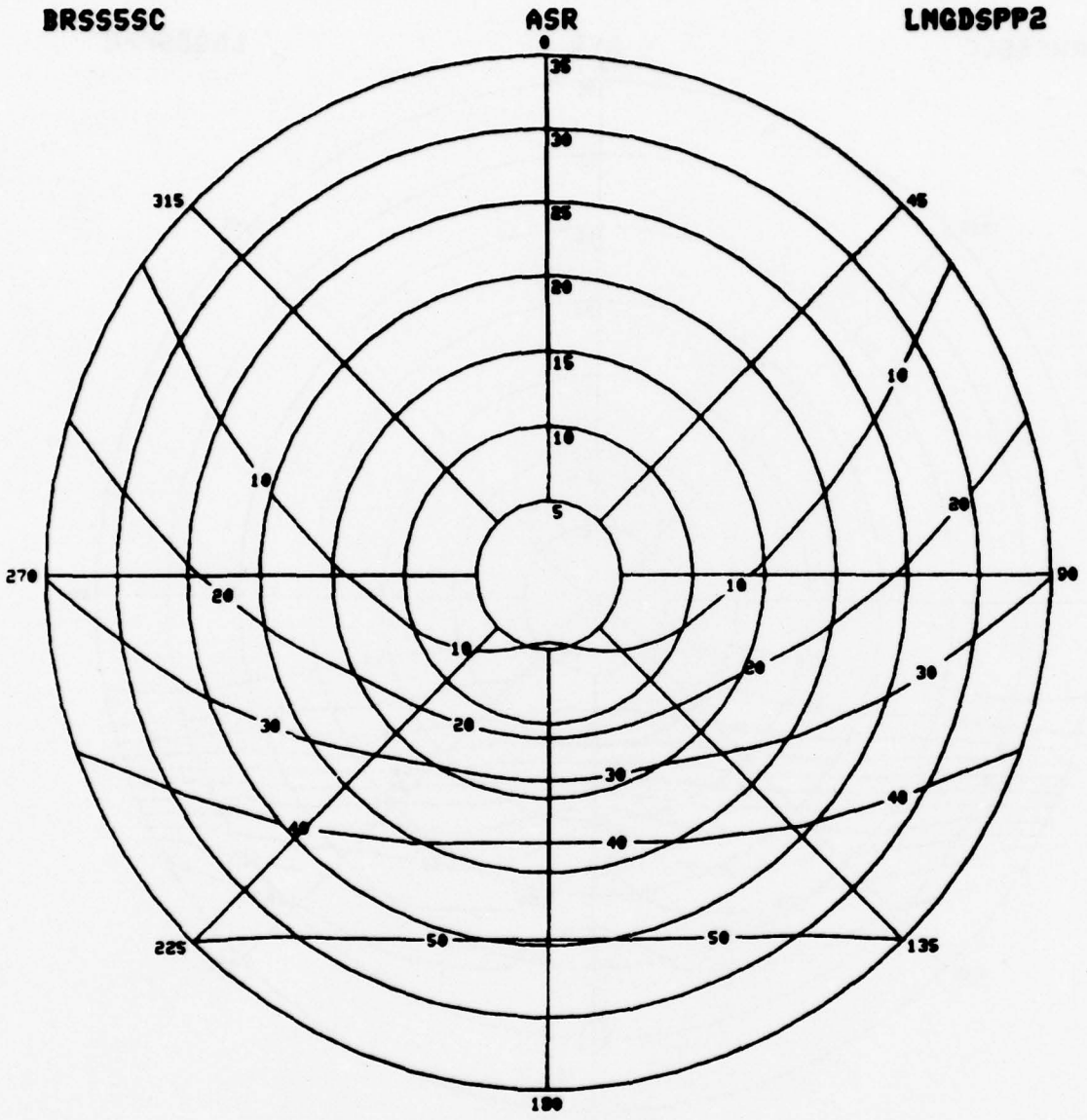

Figure 12 - Speed Polar Plot of Surge in a Sea State 5, Short-Crested

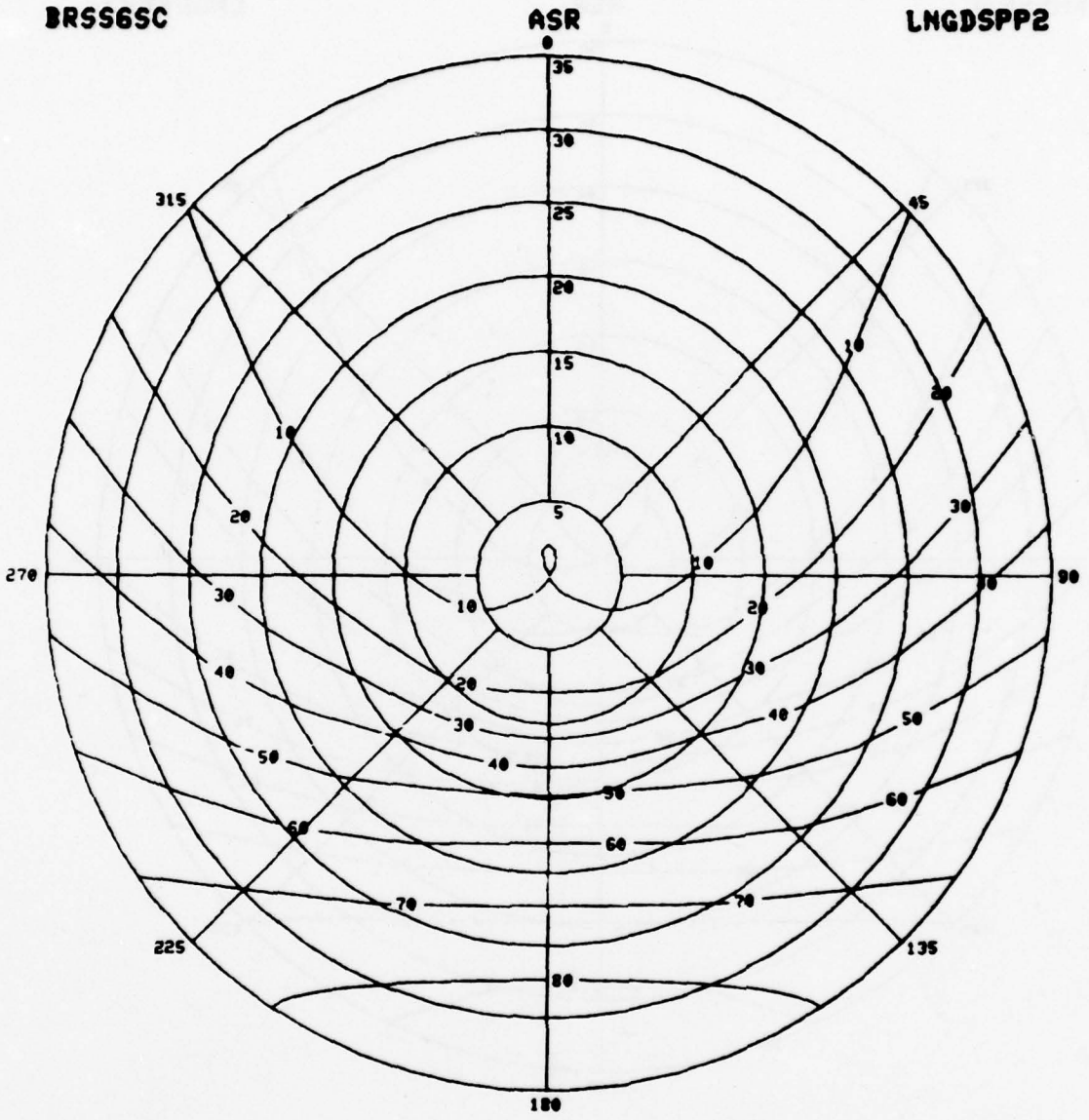

Figure 13 - Speed Polar Plot of Surge in a Sea State 6, Short-Crested

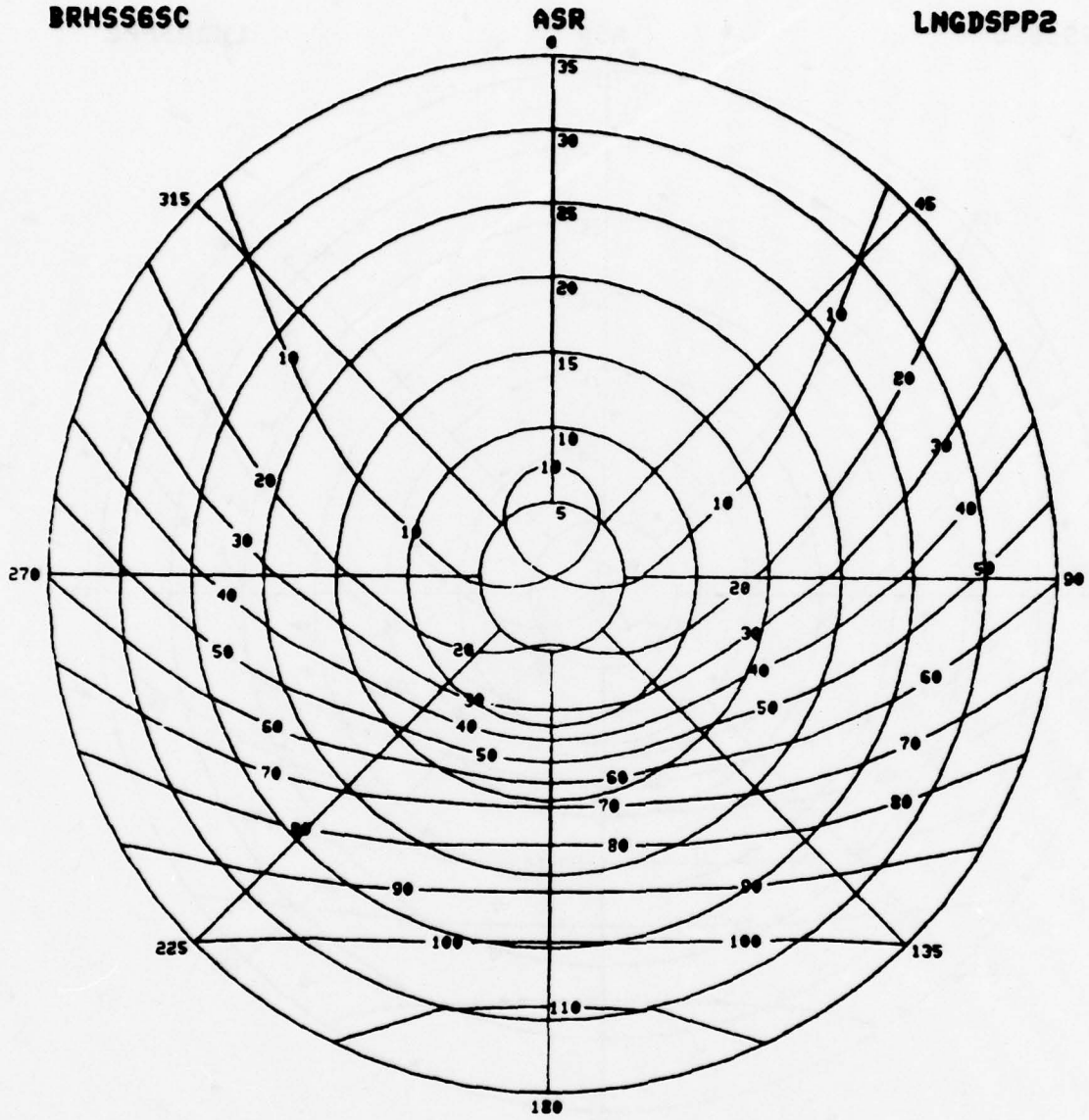

Figure 14 - Speed Polar Plot of Surge in a High Sea State 6, Short-Crested

TABLE 1 - COMPUTED SHIP PARTICULARS

Displacement, Δ	2118 Long Tons (2085 Metric Tons)
Length Between Perpendiculars, L_{PP}	240.00 feet (73.15 meters)
Beam, B	42.00 feet (12.80 meters)
Draft at Midships, $T_{\text{Ⓜ}}$	14.71 feet (4.48 meters)
Metacentric Height, GM	3.19 feet (0.97 meters)
Vertical Center of Gravity, KG	15.60 feet (4.75 meters)
Longitudinal Center of Gravity, LCG*	5.81 feet (1.77 meters)
Trim (by the stern)	2.10 feet (0.64 meters)
Block Coefficient	.50

*Aft of Midships

APPENDIX

RMS/TOE TABLES

ASR

LONGCRESTED

RMS LON DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{DE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.07/ 8	.07/ 8	.07/ 8	.07/ 8	.06/ 7	.03/ 7	.00/ 7	.04/ 7	.06/ 7	.07/ 8	.04/ 7	.07/ 8	.07/ 8
	9	.11/10	.11/10	.10/10	.09/10	.07/ 9	.04/ 9	.01/10	.05/ 9	.08/10	.09/10	.04/ 9	.10/ 9	.11/10
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	11	.05/13	.05/13	.05/13	.05/13	.04/12	.03/12	.01/11	.08/13	.32/17	.60/24	.72/30	.79/33	.85/37
	13	.06/14	.06/14	.06/14	.05/14	.05/14	.03/14	.01/14	.08/15	.28/17	.54/24	.71/30	.80/33	.87/33
	15	.07/16	.07/16	.07/16	.06/16	.05/16	.03/16	.01/16	.08/17	.25/17	.49/24	.67/30	.78/33	.85/33
	17	.08/18	.07/18	.07/18	.07/18	.05/18	.03/18	.01/18	.08/18	.22/17	.44/24	.62/30	.74/33	.81/33
	19	.08/21	.08/21	.08/21	.07/21	.06/21	.03/21	.01/18	.07/20	.21/17	.40/24	.57/30	.69/33	.75/33
	21	.09/21	.09/21	.08/21	.08/21	.06/21	.04/21	.01/21	.07/23	.19/17	.37/24	.53/30	.64/33	.70/33

ASR

LONGCRESTED

RMS LON VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.06/ 8	.06/ 8	.06/ 7	.06/ 7	.05/ 7	.03/ 7	.00/ 7	.04/ 7	.05/ 7	.06/ 7	.03/ 6	.05/ 8	.05/ 8
	9	.08/ 9	.08/ 9	.07/ 9	.07/ 9	.05/ 8	.03/ 8	.00/ 9	.04/ 8	.06/ 8	.07/ 9	.04/ 8	.07/ 8	.08/ 9
	11	.08/10	.08/10	.08/10	.07/10	.05/10	.03/10	.00/10	.03/10	.06/10	.07/10	.03/10	.07/10	.09/10
	13	.09/13	.08/13	.08/13	.07/12	.05/12	.03/12	.00/13	.03/12	.05/12	.07/13	.03/11	.07/11	.09/13
	15	.08/14	.08/14	.07/14	.06/14	.05/14	.02/14	.00/14	.03/14	.05/14	.07/14	.03/13	.06/13	.09/14
	17	.08/16	.08/16	.07/16	.06/16	.04/16	.02/16	.00/16	.03/16	.05/16	.06/16	.02/16	.06/16	.08/16
	19	.07/18	.07/18	.06/18	.05/18	.04/18	.02/18	.00/16	.02/18	.04/18	.06/18	.02/16	.05/16	.08/18
	21	.07/18	.07/18	.06/18	.05/18	.04/18	.02/18	.00/18	.02/18	.04/18	.05/18	.02/18	.05/18	.07/18
5	7	.05/ 8	.05/ 8	.05/ 8	.05/ 7	.05/ 7	.03/ 7	.00/ 7	.04/ 7	.03/ 7	.06/ 8	.07/ 9	.07/10	.07/10
	9	.07/ 9	.07/ 9	.06/ 9	.06/ 9	.05/ 8	.03/ 8	.00/ 9	.04/ 9	.03/ 9	.07/ 9	.09/10	.09/11	.09/11
	11	.07/10	.07/10	.07/10	.06/10	.05/10	.03/10	.00/10	.04/10	.02/10	.06/11	.09/12	.10/12	.10/12
	13	.07/13	.07/13	.07/13	.06/13	.05/12	.02/12	.00/13	.03/12	.02/12	.06/13	.09/13	.10/13	.10/13
	15	.07/14	.07/14	.07/14	.06/14	.04/14	.02/14	.00/14	.03/14	.02/14	.05/14	.08/14	.09/16	.10/16
	17	.07/16	.07/16	.06/16	.05/16	.04/16	.02/16	.00/16	.03/16	.02/17	.05/17	.08/17	.09/17	.09/17
	19	.07/18	.06/18	.06/18	.05/18	.04/18	.02/18	.00/16	.02/18	.02/17	.05/17	.07/17	.08/17	.09/18
	21	.06/18	.06/18	.06/18	.05/18	.03/18	.02/18	.00/18	.02/18	.01/19	.04/19	.07/20	.08/20	.08/20
10	7	.04/ 8	.04/ 8	.04/ 8	.04/ 7	.04/ 7	.03/ 7	.00/ 7	.04/ 8	.07/ 9	.08/10	.09/12	.09/13	.09/13
	9	.06/10	.06/ 9	.06/ 9	.05/ 9	.04/ 9	.03/ 8	.00/ 9	.04/ 9	.07/10	.09/11	.11/13	.12/13	.12/13
	11	.07/10	.06/10	.06/10	.06/10	.04/10	.03/10	.00/10	.04/11	.07/12	.09/13	.11/13	.12/13	.13/13
	13	.07/13	.07/13	.06/13	.05/13	.04/13	.02/12	.00/13	.03/13	.06/13	.09/14	.11/15	.12/15	.12/15
	15	.07/14	.06/14	.06/14	.05/14	.04/14	.02/14	.00/14	.03/14	.06/15	.08/15	.10/16	.11/17	.12/17
	17	.06/16	.06/16	.06/16	.05/16	.04/16	.02/16	.00/16	.03/17	.05/16	.07/17	.09/17	.10/18	.11/18
	19	.06/18	.06/18	.05/18	.05/18	.03/18	.02/18	.00/16	.03/17	.05/17	.07/18	.09/19	.10/20	.10/20
	21	.06/21	.06/21	.05/18	.04/18	.03/18	.02/18	.00/18	.02/19	.04/20	.06/20	.08/21	.09/22	.09/22
15	7	.03/ 8	.03/ 8	.03/ 8	.04/ 8	.04/ 7	.03/ 7	.00/ 7	.05/ 8	.08/10	.11/14	.13/17	.12/20	.13/20
	9	.05/10	.05/10	.05/ 9	.05/ 9	.04/ 9	.03/ 8	.00/ 9	.04/10	.08/11	.12/14	.15/17	.15/20	.16/20
	11	.06/11	.06/11	.06/10	.05/10	.04/10	.02/10	.00/10	.04/11	.08/13	.11/14	.14/17	.16/20	.17/20
	13	.06/13	.06/13	.06/13	.05/13	.04/13	.02/12	.00/13	.04/13	.07/14	.10/14	.13/17	.15/20	.16/20
	15	.06/14	.06/14	.05/14	.05/14	.04/14	.02/14	.00/14	.03/14	.06/16	.09/14	.12/17	.14/20	.14/20
	17	.06/16	.06/16	.05/16	.05/16	.03/16	.02/16	.00/16	.03/16	.06/17	.09/14	.11/17	.12/20	.13/20
	19	.06/18	.05/18	.05/18	.04/18	.03/18	.02/18	.00/16	.03/17	.05/18	.08/14	.10/17	.11/20	.12/20
	21	.05/21	.05/21	.05/21	.04/21	.03/18	.02/18	.00/18	.02/19	.05/21	.07/20	.09/17	.10/20	.11/20
20	7	.03/ 8	.03/ 8	.03/ 8	.03/ 8	.03/ 7	.02/ 7	.00/ 7	.05/ 8	.10/13	.12/19	.08/26	.07/35	.07/35
	9	.04/10	.04/10	.04/ 9	.04/ 9	.04/ 9	.02/ 8	.00/ 9	.05/10	.10/13	.14/19	.12/23	.11/26	.11/27
	11	.05/11	.05/11	.05/11	.05/10	.04/10	.02/10	.00/10	.04/12	.09/13	.13/19	.14/23	.13/26	.14/27
	13	.05/13	.05/13	.05/13	.05/13	.04/13	.02/13	.00/13	.04/13	.08/13	.12/19	.14/23	.14/26	.15/27
	15	.05/14	.05/14	.05/14	.04/14	.04/14	.02/14	.00/14	.03/15	.07/13	.11/19	.13/23	.14/26	.15/27
	17	.05/16	.05/16	.05/16	.04/16	.03/16	.02/16	.00/16	.03/16	.06/13	.10/19	.12/23	.13/26	.14/27
	19	.05/18	.05/18	.05/18	.04/18	.03/18	.02/18	.00/16	.03/18	.06/13	.09/19	.11/23	.12/26	.13/27
	21	.05/21	.05/21	.04/21	.04/21	.03/18	.02/18	.00/18	.02/20	.05/13	.08/19	.10/23	.11/26	.12/27
25	7	.02/ 9	.02/ 9	.03/ 8	.03/ 8	.03/ 7	.02/ 7	.00/ 7	.05/ 9	.13/17	.09/27	.07/45	.08/ 7	.08/ 7
	9	.04/10	.04/10	.04/10	.04/ 9	.04/ 9	.02/ 8	.00/ 9	.05/ 9	.12/17	.13/24	.10/31	.09/39	.09/42
	11	.05/11	.05/11	.05/11	.04/10	.04/10	.02/10	.00/10	.04/12	.11/17	.14/24	.12/30	.11/33	.11/35
	13	.05/13	.05/13	.05/13	.04/13	.04/13	.02/13	.00/13	.04/13	.09/17	.13/24	.13/30	.13/33	.13/33
	15	.05/14	.05/14	.05/14	.04/14	.03/14	.02/14	.00/14	.03/15	.08/17	.12/24	.13/30	.13/33	.14/33
	17	.05/16	.05/16	.05/16	.04/16	.03/16	.02/16	.00/16	.03/17	.07/17	.11/24	.12/30	.13/33	.14/33
	19	.05/18	.05/18	.04/18	.04/18	.03/18	.02/18	.00/16	.03/18	.06/17	.10/24	.12/30	.12/33	.13/33
	21	.05/21	.04/21	.04/21	.04/21	.03/21	.02/18	.00/18	.03/20	.06/17	.09/24	.11/30	.12/33	.12/33

ASR

LONGCRESTED
RMS LON ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.14/ 7	.15/ 7	.15/ 7	.16/ 7	.15/ 7	.11/ 6	.01/ 6	.12/ 6	.15/ 7	.16/ 7	.10/ 6	.14/ 7	.14/ 7
	9	.18/ 8	.18/ 8	.17/ 8	.17/ 8	.14/ 8	.09/ 7	.01/ 7	.10/ 7	.15/ 8	.17/ 8	.09/ 6	.16/ 8	.18/ 8
	11	.17/10	.17/10	.17/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/ 8	.13/ 9	.15/ 9	.08/ 7	.15/ 8	.18/10
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/10	.11/10	.14/10	.06/ 9	.13/ 9	.16/10
	15	.14/12	.14/12	.13/12	.11/11	.09/11	.05/10	.01/12	.06/11	.09/11	.12/11	.05/10	.12/10	.14/12
	17	.12/13	.12/13	.11/13	.10/13	.07/13	.04/13	.01/13	.05/13	.08/13	.10/13	.04/11	.10/11	.13/13
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/14	.07/14	.09/14	.04/13	.09/13	.11/14
	21	.10/16	.09/16	.09/16	.07/16	.05/14	.03/14	.00/14	.04/16	.06/16	.08/16	.03/14	.07/14	.10/16
5	7	.15/ 7	.15/ 7	.15/ 7	.16/ 7	.15/ 7	.11/ 6	.01/ 6	.12/ 6	.09/ 6	.14/ 8	.14/ 9	.14/10	.14/10
	9	.18/ 8	.18/ 8	.18/ 8	.17/ 8	.14/ 8	.09/ 7	.01/ 7	.10/ 8	.07/ 7	.14/ 8	.17/10	.17/10	.17/10
	11	.18/10	.17/10	.17/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/ 9	.06/ 9	.13/ 9	.16/11	.17/12	.17/12
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/10	.05/10	.11/10	.14/12	.16/12	.16/13
	15	.14/12	.14/12	.13/12	.11/11	.09/11	.05/10	.01/12	.06/11	.04/11	.09/12	.13/12	.14/13	.14/13
	17	.13/13	.12/13	.11/13	.10/13	.07/13	.04/13	.01/13	.05/13	.03/13	.08/13	.11/13	.12/14	.13/15
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/14	.03/14	.07/14	.10/15	.11/16	.11/16
	21	.10/16	.09/16	.09/16	.07/16	.05/16	.03/14	.00/14	.03/15	.02/15	.06/15	.09/16	.10/16	.10/16
10	7	.14/ 8	.14/ 8	.15/ 7	.15/ 7	.15/ 7	.10/ 6	.01/ 6	.12/ 7	.15/ 8	.15/10	.14/12	.13/13	.13/13
	9	.18/ 8	.18/ 8	.17/ 8	.16/ 8	.14/ 8	.09/ 7	.01/ 7	.10/ 8	.14/10	.16/11	.17/12	.17/13	.17/13
	11	.18/10	.17/10	.17/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/ 9	.12/10	.15/12	.16/13	.17/13	.17/13
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/10	.11/12	.13/13	.15/14	.15/13	.16/13
	15	.14/13	.14/12	.13/12	.11/12	.09/11	.05/10	.01/12	.06/12	.09/13	.11/13	.13/14	.14/15	.14/15
	17	.13/13	.12/13	.11/13	.10/13	.07/13	.04/13	.01/13	.05/13	.08/13	.10/14	.11/15	.12/16	.12/16
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/14	.07/15	.09/15	.10/16	.11/17	.11/17
	21	.10/16	.09/16	.09/16	.07/16	.05/16	.03/16	.00/14	.03/15	.06/16	.08/17	.09/17	.09/18	.10/17
15	7	.13/ 8	.14/ 8	.14/ 8	.15/ 7	.14/ 7	.10/ 6	.01/ 6	.12/ 7	.14/10	.14/14	.13/17	.11/20	.11/20
	9	.17/ 9	.17/ 8	.17/ 8	.16/ 8	.14/ 8	.09/ 7	.01/ 7	.10/ 8	.14/10	.15/14	.16/17	.14/20	.15/20
	11	.18/10	.17/10	.17/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/10	.12/11	.14/14	.16/17	.15/20	.15/20
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/10	.10/12	.13/14	.14/17	.14/20	.15/20
	15	.14/13	.14/13	.13/12	.11/12	.09/11	.05/11	.01/12	.06/12	.09/13	.11/14	.13/17	.13/20	.13/20
	17	.13/14	.12/14	.11/13	.10/13	.07/13	.04/13	.01/13	.05/13	.08/14	.10/14	.11/17	.12/20	.12/20
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/14	.07/15	.09/14	.10/17	.10/20	.11/20
	21	.10/16	.10/16	.09/16	.07/16	.05/16	.03/16	.00/14	.03/15	.06/17	.07/14	.09/17	.09/20	.09/20
20	7	.13/ 8	.13/ 8	.14/ 8	.14/ 8	.14/ 7	.10/ 6	.01/ 4	.12/ 8	.14/13	.11/19	.06/25	.04/31	.04/33
	9	.17/ 9	.17/ 9	.17/ 8	.16/ 8	.14/ 8	.08/ 7	.01/ 7	.10/ 9	.14/13	.14/19	.09/23	.07/26	.07/27
	11	.17/10	.17/10	.16/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/10	.12/13	.13/19	.11/23	.09/26	.09/27
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/11	.10/13	.12/19	.11/23	.10/26	.10/27
	15	.14/13	.14/13	.13/12	.11/12	.09/11	.05/11	.01/12	.06/13	.09/13	.11/19	.11/23	.10/26	.10/27
	17	.13/14	.12/14	.11/13	.10/13	.07/13	.04/13	.01/13	.05/13	.08/13	.09/19	.10/23	.10/26	.10/27
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/15	.07/13	.08/19	.09/23	.09/26	.09/27
	21	.10/16	.10/16	.09/16	.07/16	.05/16	.03/16	.00/14	.03/16	.06/13	.07/19	.08/23	.08/26	.08/27
25	7	.12/ 8	.12/ 7	.13/ 7	.14/ 8	.13/ 7	.10/ 7	.01/ 4	.11/ 9	.13/17	.06/26	.05/ 6	.06/ 6	.07/ 7
	9	.16/ 9	.16/ 9	.16/ 9	.15/ 8	.13/ 8	.08/ 7	.01/ 7	.10/ 9	.13/17	.09/24	.06/31	.05/37	.06/ 7
	11	.17/10	.17/10	.16/10	.15/ 9	.12/ 9	.07/ 8	.01/ 9	.08/ 9	.12/17	.10/24	.07/30	.06/33	.06/35
	13	.16/10	.16/10	.15/10	.13/10	.10/10	.06/10	.01/10	.07/ 9	.10/17	.10/24	.08/30	.07/33	.07/33
	15	.14/13	.14/13	.13/12	.11/12	.09/11	.05/11	.01/12	.06/ 9	.09/17	.09/24	.08/30	.08/33	.08/33
	17	.13/14	.12/14	.11/13	.10/13	.07/13	.04/13	.01/13	.05/14	.07/17	.08/24	.08/30	.08/33	.08/33
	19	.11/14	.11/14	.10/14	.08/14	.06/14	.03/14	.00/14	.04/15	.06/17	.08/24	.07/30	.07/33	.07/33
	21	.10/16	.09/16	.09/16	.07/16	.05/16	.03/16	.00/14	.03/17	.06/17	.07/24	.07/30	.07/33	.07/33

ASR

LONGCRESTED

RMS LAT DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.01/ 8	.03/ 8	.05/ 8	.09/ 8	.13/ 8	.15/ 7	.13/ 8	.09/ 8	.05/ 8	.03/ 8	.01/ 8	.00/ 8
	9	0.00/**	.03/11	.06/10	.10/10	.14/10	.17/10	.19/10	.17/10	.14/10	.10/10	.06/10	.03/10	.00/10
	11	0.00/**	.04/12	.08/12	.13/12	.17/12	.20/12	.22/12	.20/12	.17/12	.13/12	.09/12	.04/12	.00/10
	13	0.00/**	.05/14	.10/13	.15/13	.19/13	.22/13	.24/13	.22/13	.19/13	.15/13	.10/13	.05/13	.00/10
	15	0.00/**	.06/14	.11/14	.16/14	.20/14	.23/14	.24/14	.23/14	.20/14	.16/14	.11/14	.06/14	.00/14
	17	0.00/**	.06/16	.11/16	.16/16	.21/16	.23/16	.24/16	.23/16	.21/16	.16/16	.11/16	.06/16	.00/16
	19	0.00/**	.06/18	.12/18	.17/18	.21/18	.23/18	.24/18	.24/18	.21/18	.17/18	.12/18	.06/18	.00/18
	21	0.00/**	.06/21	.12/21	.17/21	.21/21	.24/21	.25/21	.24/21	.21/21	.17/21	.12/21	.06/21	.00/21
5	7	0.00/**	.01/ 8	.03/ 8	.05/ 8	.08/ 8	.12/ 8	.15/ 7	.14/ 8	.10/ 9	.07/ 9	.04/11	.02/11	.00/10
	9	0.00/**	.02/10	.05/10	.08/10	.12/10	.16/10	.19/10	.18/11	.16/10	.12/11	.08/11	.04/11	.00/10
	11	0.00/**	.03/13	.07/13	.11/13	.16/12	.20/12	.22/12	.21/11	.19/12	.15/13	.10/13	.05/13	.00/13
	13	0.00/**	.04/14	.09/14	.13/14	.18/13	.22/13	.24/13	.23/13	.21/13	.17/14	.12/14	.06/14	.00/15
	15	0.00/**	.05/16	.10/16	.15/16	.19/16	.22/14	.24/14	.24/15	.22/15	.17/15	.12/16	.06/16	.00/16
	17	0.00/**	.05/16	.10/16	.15/16	.19/16	.23/16	.24/16	.24/16	.22/17	.18/19	.12/19	.06/20	.00/20
	19	0.00/**	.05/18	.11/18	.16/18	.20/18	.23/18	.24/18	.24/18	.22/19	.18/19	.13/20	.07/20	.00/20
	21	0.00/**	.06/21	.11/21	.16/21	.20/21	.23/21	.25/21	.24/21	.22/22	.18/22	.13/22	.07/22	.00/22
10	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.07/ 8	.12/ 8	.15/ 7	.15/ 8	.12/10	.10/11	.07/12	.03/13	.00/13
	9	0.00/**	.02/10	.04/10	.07/10	.11/10	.16/10	.19/10	.20/10	.18/11	.15/12	.10/13	.05/14	.00/14
	11	0.00/**	.03/12	.06/12	.10/13	.14/13	.19/12	.22/11	.23/12	.21/13	.18/14	.12/15	.06/15	.00/15
	13	0.00/**	.04/14	.08/14	.12/14	.16/14	.21/13	.23/13	.24/13	.23/14	.19/15	.13/16	.07/17	.00/17
	15	0.00/**	.05/16	.09/16	.14/16	.18/16	.22/16	.24/14	.25/15	.23/16	.19/17	.14/17	.07/18	.00/18
	17	0.00/**	.05/18	.10/18	.14/16	.18/16	.22/16	.24/16	.25/17	.23/20	.19/18	.14/20	.07/20	.00/20
	19	0.00/**	.05/18	.10/18	.15/18	.19/18	.22/18	.24/18	.25/19	.23/20	.20/21	.14/22	.07/22	.00/22
	21	0.00/**	.05/21	.10/21	.15/21	.19/21	.22/21	.25/21	.25/22	.23/22	.20/23	.14/24	.07/24	.00/24
15	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.07/ 8	.11/ 8	.15/ 7	.16/ 9	.16/11	.16/14	.15/17	.10/20	.00/**
	9	0.00/**	.02/10	.04/10	.07/10	.10/10	.15/10	.19/10	.21/11	.22/12	.20/14	.16/17	.10/20	.00/**
	11	0.00/**	.03/13	.06/13	.09/13	.13/13	.18/12	.22/11	.24/12	.24/14	.21/14	.17/17	.10/20	.00/**
	13	0.00/**	.03/14	.07/14	.11/14	.15/14	.20/14	.23/13	.25/14	.25/16	.22/17	.18/17	.10/20	.00/**
	15	0.00/**	.04/16	.08/16	.12/16	.17/16	.21/16	.24/14	.26/15	.25/17	.23/18	.18/17	.10/20	.00/**
	17	0.00/**	.04/18	.09/18	.13/18	.17/16	.21/16	.24/16	.26/19	.25/19	.23/20	.18/22	.10/20	.00/**
	19	0.00/**	.05/18	.09/18	.14/18	.18/18	.21/18	.24/18	.26/20	.25/21	.22/22	.17/23	.10/20	.00/**
	21	0.00/**	.05/21	.09/21	.14/21	.18/21	.22/21	.24/21	.26/22	.25/23	.22/25	.17/26	.09/25	.00/**
20	7	0.00/**	.01/ 9	.02/ 8	.03/ 8	.06/ 8	.10/ 8	.15/ 7	.19/10	.25/13	.33/19	.23/29	.13/42	.00/**
	9	0.00/**	.02/10	.03/10	.06/10	.09/10	.14/10	.19/10	.24/11	.28/13	.34/19	.25/23	.16/26	.00/**
	11	0.00/**	.02/13	.05/13	.08/13	.12/13	.17/12	.22/11	.26/13	.29/13	.34/19	.26/23	.16/26	.00/**
	13	0.00/**	.03/16	.06/14	.10/14	.14/14	.19/14	.23/13	.27/15	.30/16	.32/19	.26/23	.16/26	.00/**
	15	0.00/**	.04/16	.07/16	.11/16	.16/16	.20/16	.24/14	.27/16	.29/18	.31/19	.25/23	.15/26	.00/**
	17	0.00/**	.04/18	.08/18	.12/18	.16/18	.20/16	.24/16	.27/18	.29/20	.30/19	.24/23	.15/26	.00/**
	19	0.00/**	.04/18	.08/18	.13/18	.17/18	.21/18	.24/18	.27/20	.29/22	.29/19	.23/23	.14/26	.00/**
	21	0.00/**	.04/21	.09/21	.13/21	.17/21	.21/21	.24/21	.27/22	.28/24	.28/19	.22/23	.13/26	.00/**
25	7	0.00/**	.01/ 9	.02/ 9	.03/ 8	.06/ 8	.10/ 8	.15/ 7	.22/10	.44/17	.31/31	.20/**	.11/ 8	.00/**
	9	0.00/**	.01/10	.03/10	.05/10	.09/10	.13/10	.19/10	.27/12	.43/17	.34/24	.24/33	.15/52	.00/**
	11	0.00/**	.02/13	.04/13	.07/13	.11/13	.16/12	.22/11	.29/13	.41/17	.35/24	.25/30	.16/33	.00/**
	13	0.00/**	.03/14	.06/14	.09/14	.13/14	.18/14	.23/13	.29/15	.39/17	.36/24	.26/30	.16/33	.00/**
	15	0.00/**	.03/16	.07/16	.10/16	.14/16	.19/16	.24/14	.29/17	.37/17	.35/24	.26/30	.17/33	.00/**
	17	0.00/**	.04/18	.07/18	.11/18	.15/18	.20/16	.24/16	.29/18	.35/17	.35/24	.26/30	.17/33	.00/**
	19	0.00/**	.04/18	.08/18	.12/18	.16/18	.20/18	.24/18	.29/20	.34/17	.34/24	.26/30	.16/33	.00/**
	21	0.00/**	.04/21	.08/21	.12/21	.16/21	.20/21	.24/21	.29/23	.33/17	.33/24	.25/30	.16/33	.00/**

ASR

LONGCRESTED

RMS LAT VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.08/ 7	.12/ 7	.15/ 7	.12/ 7	.07/ 7	.04/ 8	.02/ 8	.01/ 8	.00/ 8
	9	0.00/**	.02/ 9	.04/ 9	.07/ 9	.10/ 9	.13/ 9	.15/ 8	.13/ 9	.10/ 9	.07/ 9	.04/10	.02/10	.00/10
	11	0.00/**	.02/12	.05/12	.08/11	.10/11	.13/11	.14/11	.13/11	.11/11	.08/11	.05/11	.02/11	.00/10
	13	0.00/**	.03/13	.05/13	.08/13	.10/12	.13/12	.14/12	.13/12	.11/12	.08/12	.05/12	.03/12	.00/10
	15	0.00/**	.03/14	.05/14	.08/14	.10/14	.12/13	.13/13	.12/13	.10/13	.08/14	.05/14	.03/14	.00/10
	17	0.00/**	.03/14	.05/14	.07/14	.09/14	.11/14	.12/14	.11/14	.09/14	.07/14	.05/14	.03/14	.00/14
	19	0.00/**	.02/16	.05/16	.07/16	.09/16	.10/16	.11/16	.10/16	.09/16	.07/16	.05/16	.02/16	.00/16
	21	0.00/**	.02/18	.04/18	.06/18	.08/18	.09/18	.10/18	.09/18	.08/18	.06/18	.04/18	.02/18	.00/18
5	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.08/ 7	.12/ 7	.15/ 7	.12/ 7	.08/ 8	.04/ 9	.02/10	.01/11	.00/10
	9	0.00/**	.02/10	.04/10	.06/10	.10/ 9	.13/ 9	.15/ 8	.13/ 9	.10/10	.07/11	.04/11	.02/11	.00/10
	11	0.00/**	.02/13	.05/13	.07/13	.10/11	.13/11	.14/11	.13/11	.11/11	.08/11	.05/12	.03/12	.00/10
	13	0.00/**	.03/13	.05/13	.08/13	.10/13	.13/12	.14/12	.13/12	.11/12	.08/13	.05/13	.03/13	.00/13
	15	0.00/**	.03/14	.05/14	.08/14	.10/14	.12/13	.13/13	.12/13	.10/14	.08/14	.05/14	.03/15	.00/15
	17	0.00/**	.02/16	.05/16	.07/16	.09/14	.11/14	.12/14	.11/14	.09/15	.07/15	.05/16	.03/16	.00/16
	19	0.00/**	.02/16	.05/16	.07/16	.09/16	.10/16	.11/16	.10/16	.09/17	.07/19	.05/19	.02/20	.00/20
	21	0.00/**	.02/18	.04/18	.06/18	.08/16	.09/18	.10/18	.09/18	.08/19	.06/19	.04/20	.02/20	.00/20
10	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.08/ 7	.12/ 7	.15/ 7	.12/ 8	.08/10	.06/11	.03/12	.01/13	.00/13
	9	0.00/**	.02/10	.04/10	.06/10	.10/ 9	.13/ 9	.15/ 9	.13/10	.10/11	.08/12	.05/13	.02/14	.00/14
	11	0.00/**	.02/11	.05/11	.07/11	.10/10	.13/11	.14/10	.13/11	.11/12	.08/13	.05/14	.03/15	.00/15
	13	0.00/**	.02/14	.05/14	.08/13	.10/13	.13/13	.14/12	.13/13	.11/13	.08/14	.05/15	.03/16	.00/16
	15	0.00/**	.03/14	.05/14	.08/14	.10/14	.12/14	.13/13	.12/14	.10/15	.08/15	.05/16	.03/17	.00/17
	17	0.00/**	.02/16	.05/16	.07/16	.09/16	.11/14	.12/14	.11/15	.09/16	.07/17	.05/19	.02/20	.00/18
	19	0.00/**	.02/16	.05/16	.07/16	.09/16	.10/16	.11/16	.10/17	.09/18	.07/18	.05/20	.02/20	.00/20
	21	0.00/**	.02/18	.04/18	.06/18	.08/18	.09/16	.10/18	.09/19	.08/20	.06/21	.04/22	.02/22	.00/22
15	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.08/ 7	.12/ 7	.15/ 7	.12/ 9	.09/11	.06/14	.04/17	.02/20	.00/**
	9	0.00/**	.02/10	.04/10	.06/10	.10/ 9	.13/ 9	.15/ 9	.14/10	.11/12	.08/14	.05/17	.03/20	.00/20
	11	0.00/**	.02/11	.05/11	.07/11	.10/10	.13/10	.14/10	.14/11	.12/13	.09/14	.06/17	.03/20	.00/20
	13	0.00/**	.02/13	.05/14	.07/14	.10/13	.12/13	.14/12	.13/13	.11/15	.08/14	.06/17	.03/20	.00/20
	15	0.00/**	.02/16	.05/14	.07/14	.10/14	.12/14	.13/13	.12/14	.10/16	.08/17	.06/17	.03/20	.00/20
	17	0.00/**	.02/16	.05/16	.07/16	.09/16	.11/14	.11/14	.11/15	.10/17	.08/18	.05/17	.03/20	.00/20
	19	0.00/**	.02/16	.05/16	.07/16	.09/16	.10/16	.11/16	.10/17	.09/19	.07/20	.05/17	.03/20	.00/20
	21	0.00/**	.02/18	.04/18	.06/18	.08/18	.09/18	.10/18	.09/20	.08/21	.07/22	.05/23	.02/20	.00/20
20	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.08/ 7	.12/ 7	.15/ 7	.13/ 9	.11/13	.08/19	.04/26	.02/35	.00/**
	9	0.00/**	.02/10	.04/10	.06/10	.09/ 9	.13/ 9	.15/ 9	.14/11	.12/13	.10/19	.05/23	.03/26	.00/**
	11	0.00/**	.02/11	.04/11	.07/11	.10/11	.13/10	.14/10	.14/12	.12/13	.10/19	.06/23	.03/26	.00/**
	13	0.00/**	.02/13	.05/13	.07/13	.10/13	.12/13	.14/12	.13/13	.12/13	.10/19	.06/23	.04/26	.00/**
	15	0.00/**	.02/16	.05/16	.07/14	.10/14	.11/14	.12/13	.12/15	.11/13	.09/19	.06/23	.03/26	.00/**
	17	0.00/**	.02/16	.05/16	.07/16	.09/16	.11/16	.11/14	.11/16	.10/18	.09/19	.06/23	.03/26	.00/**
	19	0.00/**	.02/16	.04/18	.07/16	.08/16	.10/16	.10/16	.10/18	.09/20	.08/19	.06/23	.03/26	.00/**
	21	0.00/**	.02/18	.04/18	.06/18	.08/18	.09/18	.10/18	.09/20	.09/22	.07/19	.05/23	.03/26	.00/**
25	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.07/ 8	.12/ 7	.15/ 7	.14/10	.14/17	.05/27	.02/45	.01/ 7	.00/**
	9	0.00/**	.02/10	.04/10	.06/ 9	.09/ 9	.13/ 9	.15/ 9	.15/11	.15/17	.07/24	.03/31	.02/39	.00/**
	11	0.00/**	.02/11	.04/11	.07/11	.10/11	.13/10	.14/10	.15/12	.14/17	.08/24	.04/30	.02/33	.00/**
	13	0.00/**	.02/13	.05/13	.07/13	.10/13	.12/13	.14/12	.14/14	.13/17	.09/24	.05/30	.03/33	.00/**
	15	0.00/**	.02/16	.05/16	.07/16	.09/14	.11/14	.12/13	.13/15	.12/17	.09/24	.05/30	.03/33	.00/**
	17	0.00/**	.02/16	.04/16	.07/16	.09/16	.10/16	.11/14	.12/17	.11/17	.09/24	.05/30	.03/33	.00/**
	19	0.00/**	.02/18	.04/18	.06/18	.08/16	.10/16	.10/16	.11/18	.10/17	.08/24	.05/30	.03/33	.00/**
	21	0.00/**	.02/18	.04/18	.06/18	.08/18	.09/18	.10/18	.10/20	.10/17	.08/24	.05/30	.03/33	.00/**

ASR

LONGCRESTED

RMS LAT ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.03/ 8	.06/ 8	.12/ 7	.22/ 7	.38/ 6	.49/ 6	.36/ 7	.21/ 7	.12/ 8	.06/ 8	.03/ 8	.00/ 8
	9	0.00/**	.04/ 9	.09/ 9	.15/ 8	.23/ 8	.35/ 8	.42/ 7	.33/ 8	.23/ 8	.15/ 9	.09/ 9	.04/10	.00/10
	11	0.00/**	.04/11	.09/11	.15/11	.22/ 9	.30/ 9	.35/ 9	.29/ 9	.22/10	.15/10	.10/10	.05/10	.00/10
	13	0.00/**	.04/12	.09/12	.14/12	.20/11	.26/11	.29/11	.25/11	.20/11	.14/11	.09/11	.05/11	.00/10
	15	0.00/**	.04/12	.08/12	.13/12	.17/12	.22/12	.24/12	.22/12	.18/12	.13/12	.09/12	.04/12	.00/10
	17	0.00/**	.04/13	.08/13	.11/13	.15/13	.19/12	.21/12	.19/12	.15/12	.12/13	.08/13	.04/13	.00/10
	19	0.00/**	.03/14	.07/14	.10/14	.13/13	.16/13	.18/13	.16/13	.13/13	.10/13	.07/14	.03/14	.00/10
	21	0.00/**	.03/14	.06/14	.09/14	.12/14	.14/14	.15/14	.14/14	.12/14	.09/14	.06/14	.03/14	.00/10
5	7	0.00/**	.03/ 8	.07/ 8	.14/ 7	.25/ 7	.41/ 6	.49/ 6	.33/ 7	.18/ 8	.10/ 9	.05/10	.02/11	.00/10
	9	0.00/**	.05/ 9	.10/ 9	.17/ 9	.26/ 8	.37/ 8	.41/ 8	.31/ 8	.21/ 9	.13/11	.08/11	.04/11	.00/10
	11	0.00/**	.05/10	.10/10	.17/10	.24/10	.32/ 9	.35/ 9	.28/11	.20/11	.14/11	.09/11	.04/11	.00/10
	13	0.00/**	.05/13	.10/13	.16/13	.22/12	.27/12	.29/11	.24/11	.19/11	.13/11	.08/12	.04/13	.00/10
	15	0.00/**	.05/13	.09/13	.14/13	.19/13	.23/12	.24/12	.21/11	.16/12	.12/13	.08/13	.04/13	.00/10
	17	0.00/**	.04/13	.08/13	.12/13	.16/13	.20/12	.21/12	.18/12	.14/13	.10/14	.07/14	.03/14	.00/10
	19	0.00/**	.04/13	.07/14	.11/14	.14/13	.17/13	.18/13	.15/13	.12/13	.09/14	.06/14	.03/15	.00/16
	21	0.00/**	.03/14	.07/14	.10/14	.12/14	.15/14	.15/14	.13/14	.11/15	.08/15	.05/15	.03/16	.00/16
10	7	0.00/**	.04/ 8	.08/ 8	.16/ 7	.27/ 7	.44/ 6	.49/ 6	.30/ 8	.16/ 9	.10/11	.05/12	.02/13	.00/13
	9	0.00/**	.05/ 9	.11/ 9	.19/ 8	.28/ 8	.39/ 8	.41/ 8	.30/ 9	.19/11	.13/11	.07/13	.03/14	.00/14
	11	0.00/**	.06/10	.12/10	.18/10	.26/10	.33/ 9	.35/ 9	.27/10	.19/11	.13/12	.07/14	.03/14	.00/15
	13	0.00/**	.06/11	.11/11	.17/11	.23/13	.28/11	.29/11	.23/11	.17/12	.12/13	.07/14	.03/15	.00/15
	15	0.00/**	.05/14	.10/14	.15/13	.20/13	.24/13	.24/12	.20/12	.15/13	.11/14	.06/15	.03/16	.00/16
	17	0.00/**	.05/14	.09/14	.13/14	.17/13	.20/13	.21/12	.17/13	.13/13	.09/15	.06/16	.03/17	.00/17
	19	0.00/**	.04/14	.08/14	.12/14	.15/14	.18/13	.18/13	.15/13	.12/15	.08/15	.05/17	.03/18	.00/18
	21	0.00/**	.04/14	.07/14	.10/14	.13/14	.15/14	.15/14	.13/15	.10/15	.07/16	.05/19	.02/20	.00/20
15	7	0.00/**	.04/ 8	.09/ 8	.17/ 7	.30/ 7	.46/ 6	.49/ 6	.29/ 8	.16/11	.08/14	.04/17	.02/20	.00/20
	9	0.00/**	.06/ 9	.12/ 9	.21/ 8	.31/ 8	.41/ 8	.42/ 8	.29/10	.19/11	.10/14	.06/17	.03/20	.00/20
	11	0.00/**	.06/10	.13/10	.20/10	.28/10	.35/10	.35/ 9	.26/11	.18/12	.11/14	.06/17	.03/20	.00/20
	13	0.00/**	.06/11	.12/11	.18/11	.24/11	.29/10	.29/10	.22/11	.16/13	.10/14	.06/17	.03/20	.00/20
	15	0.00/**	.05/13	.11/14	.16/13	.21/13	.25/13	.24/12	.19/12	.14/14	.09/14	.06/17	.03/20	.00/20
	17	0.00/**	.05/16	.10/14	.14/14	.18/14	.21/13	.21/13	.17/13	.12/15	.08/17	.05/17	.03/20	.00/20
	19	0.00/**	.04/16	.09/16	.13/14	.16/14	.18/14	.18/13	.14/14	.11/16	.07/18	.05/17	.02/20	.00/20
	21	0.00/**	.04/16	.08/16	.11/16	.14/14	.16/14	.15/14	.13/14	.10/16	.07/19	.04/17	.02/20	.00/20
20	7	0.00/**	.04/ 8	.10/ 8	.19/ 8	.32/ 7	.48/ 6	.49/ 6	.27/ 9	.15/13	.08/19	.03/25	.01/31	.00/70
	9	0.00/**	.06/ 9	.14/ 9	.22/ 8	.33/ 8	.43/ 7	.42/ 8	.28/10	.17/13	.10/19	.04/23	.02/26	.00/30
	11	0.00/**	.07/10	.14/10	.22/10	.29/ 9	.36/10	.35/ 9	.25/11	.17/13	.10/19	.05/23	.02/26	.00/27
	13	0.00/**	.06/11	.13/11	.20/11	.26/11	.30/10	.29/10	.22/12	.15/13	.10/19	.05/23	.03/26	.00/27
	15	0.00/**	.06/13	.12/13	.17/13	.22/13	.26/13	.24/11	.19/13	.13/13	.09/19	.05/23	.03/26	.00/27
	17	0.00/**	.05/16	.10/16	.15/14	.19/14	.22/13	.21/13	.16/13	.12/13	.08/19	.05/23	.02/26	.00/27
	19	0.00/**	.05/16	.09/16	.13/16	.17/14	.19/14	.18/13	.14/15	.10/13	.07/19	.04/23	.02/26	.00/27
	21	0.00/**	.04/16	.08/16	.12/16	.14/14	.16/14	.15/14	.12/15	.09/13	.07/19	.04/23	.02/26	.00/27
25	7	0.00/**	.05/ 8	.11/ 8	.20/ 7	.34/ 7	.50/ 7	.49/ 6	.28/10	.15/17	.03/26	.02/37	.01/ 7	.00/ 8
	9	0.00/**	.07/ 9	.15/ 9	.24/ 8	.34/ 8	.44/ 7	.42/ 8	.28/10	.17/17	.05/24	.02/31	.01/37	.00/**
	11	0.00/**	.07/10	.15/10	.23/10	.31/ 9	.37/ 9	.35/ 9	.25/11	.16/17	.07/24	.03/30	.01/33	.00/48
	13	0.00/**	.07/11	.14/11	.21/10	.27/10	.31/10	.29/10	.22/12	.15/17	.07/24	.03/30	.01/33	.00/33
	15	0.00/**	.06/13	.12/13	.18/13	.23/13	.26/13	.24/11	.19/13	.13/17	.07/24	.03/30	.02/33	.00/33
	17	0.00/**	.06/14	.11/14	.16/14	.20/14	.22/13	.21/13	.16/14	.12/17	.07/24	.03/30	.02/33	.00/33
	19	0.00/**	.05/16	.10/16	.14/16	.17/14	.19/14	.18/13	.14/15	.10/17	.06/24	.03/30	.02/33	.00/33
	21	0.00/**	.04/16	.08/16	.12/16	.15/16	.16/14	.15/14	.12/15	.09/17	.06/24	.03/30	.02/33	.00/33

ASR

LONGCRESTED

RMS VER DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.36/ 7	.37/ 7	.39/ 7	.42/ 7	.42/ 6	.31/ 6	.23/ 7	.39/ 6	.45/ 6	.43/ 7	.39/ 7	.37/ 7	.36/ 7
	9	.42/ 8	.42/ 8	.42/ 8	.42/ 8	.39/ 8	.30/ 9	.25/ 9	.35/ 8	.41/ 8	.42/ 8	.42/ 8	.41/ 8	.41/ 8
	11	.41/10	.41/10	.40/10	.39/10	.35/10	.29/10	.25/10	.31/10	.37/10	.39/10	.40/10	.40/10	.40/10
	13	.38/11	.38/11	.37/12	.35/12	.32/13	.28/13	.25/13	.29/13	.33/13	.35/12	.37/12	.37/11	.38/11
	15	.35/14	.35/14	.34/14	.33/14	.30/14	.27/14	.25/16	.28/14	.31/14	.33/14	.34/14	.35/14	.35/14
	17	.33/16	.33/16	.32/16	.31/16	.29/16	.26/18	.25/18	.27/18	.29/16	.31/16	.32/16	.32/16	.33/16
	19	.31/18	.31/18	.30/18	.29/18	.28/18	.26/18	.25/18	.26/18	.28/18	.29/18	.30/18	.31/18	.31/18
	21	.30/21	.29/21	.29/21	.28/21	.27/21	.26/21	.25/21	.26/21	.27/21	.28/21	.29/21	.29/21	.30/21
5	7	.40/ 7	.41/ 7	.42/ 7	.43/ 7	.41/ 6	.32/ 6	.24/ 7	.37/ 6	.39/ 7	.35/ 8	.31/ 9	.29/ 9	.28/10
	9	.46/ 8	.46/ 8	.46/ 8	.44/ 7	.39/ 7	.31/ 9	.26/ 9	.33/ 9	.37/ 9	.37/10	.36/10	.35/10	.35/10
	11	.44/10	.44/10	.43/10	.40/10	.36/10	.29/10	.26/10	.31/11	.34/11	.35/11	.35/11	.35/12	.35/12
	13	.40/11	.40/11	.39/12	.36/12	.33/13	.28/13	.26/13	.29/13	.31/13	.33/13	.34/13	.34/13	.34/13
	15	.37/14	.37/14	.36/14	.33/14	.30/14	.27/14	.25/16	.27/15	.29/15	.31/15	.32/15	.32/16	.32/16
	17	.34/16	.34/16	.33/16	.31/16	.29/16	.26/18	.25/18	.27/18	.28/17	.29/17	.30/17	.31/17	.31/17
	19	.32/18	.32/18	.31/18	.30/18	.28/18	.26/18	.25/18	.26/18	.27/19	.28/19	.29/20	.29/20	.29/20
	21	.30/21	.30/21	.30/21	.28/21	.27/21	.26/21	.25/21	.26/21	.27/22	.27/22	.28/22	.28/22	.29/22
10	7	.39/ 7	.40/ 7	.41/ 7	.42/ 7	.41/ 7	.33/ 6	.26/ 7	.35/ 7	.34/ 8	.30/10	.26/12	.24/13	.24/13
	9	.48/ 8	.47/ 8	.47/ 8	.45/ 7	.40/ 7	.32/ 9	.27/ 9	.32/10	.34/10	.33/11	.32/12	.31/13	.30/13
	11	.46/ 9	.45/ 9	.44/ 9	.41/ 9	.37/10	.30/10	.26/10	.30/11	.32/12	.32/13	.32/13	.32/13	.32/13
	13	.42/12	.41/12	.40/12	.37/13	.33/13	.29/13	.26/13	.28/13	.30/14	.31/14	.31/15	.31/13	.31/15
	15	.38/14	.38/14	.36/14	.34/14	.31/14	.28/14	.26/14	.27/15	.28/16	.29/17	.30/17	.30/18	.30/17
	17	.35/16	.35/16	.34/16	.32/16	.29/16	.27/18	.25/18	.26/17	.27/18	.28/18	.29/19	.29/20	.29/20
	19	.33/18	.32/18	.32/18	.30/18	.28/18	.26/18	.25/18	.26/19	.27/20	.27/21	.28/21	.28/22	.28/22
	21	.31/21	.31/21	.30/21	.29/21	.27/21	.26/21	.25/21	.26/22	.26/22	.27/23	.27/24	.28/24	.28/24
15	7	.38/ 8	.39/ 8	.41/ 7	.43/ 7	.42/ 7	.36/ 6	.27/ 6	.33/ 8	.32/10	.26/14	.22/17	.21/20	.20/20
	9	.49/ 8	.49/ 8	.49/ 8	.47/ 7	.42/ 7	.35/ 8	.27/ 9	.31/10	.32/10	.29/14	.27/17	.27/20	.27/20
	11	.48/ 8	.47/ 8	.46/ 8	.43/ 7	.39/10	.32/10	.27/10	.29/12	.30/13	.29/14	.29/17	.29/20	.29/20
	13	.44/12	.43/12	.42/12	.39/13	.35/13	.30/13	.27/13	.28/14	.29/15	.29/14	.29/17	.29/20	.29/20
	15	.40/14	.39/14	.38/14	.36/14	.32/14	.29/14	.26/14	.27/15	.28/17	.28/14	.28/17	.29/20	.29/20
	17	.36/16	.36/16	.35/16	.33/16	.30/16	.27/16	.26/18	.26/17	.27/19	.27/20	.27/17	.28/20	.28/20
	19	.34/18	.33/18	.32/18	.31/18	.29/18	.27/18	.25/18	.26/20	.26/21	.27/22	.27/23	.27/20	.28/20
	21	.32/21	.32/21	.31/21	.29/21	.28/21	.26/21	.25/21	.26/22	.26/23	.26/25	.27/26	.27/25	.27/20
20	7	.37/ 8	.38/ 8	.40/ 8	.44/ 7	.45/ 7	.39/ 6	.27/ 6	.32/ 8	.30/13	.24/19	.21/27	.19/35	.20/**
	9	.53/ 8	.52/ 8	.52/ 8	.50/ 7	.46/ 7	.37/ 6	.28/ 9	.31/10	.31/13	.27/19	.26/23	.26/26	.26/29
	11	.52/ 8	.51/ 8	.50/ 8	.47/ 8	.41/ 7	.34/10	.28/10	.29/13	.29/13	.28/19	.27/23	.28/26	.28/27
	13	.47/ 8	.46/ 8	.45/ 8	.42/ 8	.37/13	.32/13	.27/13	.28/14	.28/13	.27/19	.28/23	.28/26	.28/27
	15	.42/14	.42/14	.40/14	.38/14	.34/14	.30/14	.27/14	.27/16	.27/13	.27/19	.27/23	.28/26	.28/27
	17	.39/16	.38/16	.37/16	.35/16	.32/16	.29/16	.26/16	.26/18	.26/20	.26/19	.27/23	.27/26	.27/27
	19	.36/18	.35/18	.34/18	.32/18	.30/18	.28/18	.26/18	.26/20	.26/22	.26/19	.26/23	.27/26	.27/27
	21	.33/21	.33/21	.32/21	.31/21	.29/21	.27/21	.26/21	.26/22	.26/24	.26/26	.26/23	.27/26	.27/27
25	7	.35/ 8	.36/ 8	.40/ 8	.44/ 8	.47/ 7	.43/ 6	.28/ 7	.33/ 9	.30/17	.28/35	.24/**	.22/**	.19/ 8
	9	.56/ 9	.56/ 8	.57/ 8	.55/ 8	.50/ 7	.41/ 6	.29/ 9	.31/ 9	.29/17	.30/24	.29/37	.29/**	.26/**
	11	.56/ 9	.56/ 9	.55/ 8	.51/ 8	.45/ 7	.36/11	.29/10	.30/13	.28/17	.29/24	.29/30	.30/33	.29/37
	13	.51/ 9	.51/ 9	.49/ 8	.45/ 8	.40/ 7	.33/13	.28/13	.28/15	.27/17	.28/24	.29/30	.30/33	.29/33
	15	.46/ 9	.45/ 9	.44/ 8	.40/ 8	.36/14	.31/14	.27/14	.27/17	.26/17	.27/24	.28/30	.29/33	.28/33
	17	.41/16	.41/16	.40/16	.37/16	.33/16	.30/16	.27/16	.26/18	.26/17	.27/24	.27/30	.28/33	.28/33
	19	.38/18	.37/18	.36/18	.34/18	.31/18	.28/18	.26/18	.26/20	.26/17	.26/24	.27/30	.27/33	.27/33
	21	.35/21	.35/21	.34/21	.32/21	.30/21	.28/21	.26/21	.26/23	.25/26	.26/24	.26/30	.27/33	.27/33

ASR

LONGCRESTED
RMS VER VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.33/ 7	.34/ 7	.37/ 7	.42/ 6	.44/ 6	.33/ 6	.24/ 6	.44/ 5	.47/ 6	.42/ 6	.37/ 7	.34/ 7	.33/ 7
	9	.34/ 8	.34/ 7	.35/ 7	.37/ 7	.36/ 6	.28/ 6	.22/ 8	.34/ 5	.39/ 6	.37/ 7	.35/ 7	.34/ 7	.33/ 8
	11	.30/ 8	.30/ 8	.30/ 8	.30/ 7	.29/ 6	.23/ 9	.19/10	.27/ 5	.31/ 6	.31/ 7	.30/ 8	.29/ 8	.29/ 8
	13	.25/ 9	.25/ 9	.25/ 9	.25/ 9	.24/10	.19/10	.16/11	.22/10	.25/ 6	.25/ 9	.25/ 9	.25/ 9	.25/ 9
	15	.21/10	.21/10	.21/10	.21/10	.20/12	.16/13	.14/13	.18/13	.20/12	.21/10	.21/10	.21/10	.21/10
	17	.18/11	.18/11	.18/13	.18/13	.17/14	.14/14	.13/14	.15/14	.17/14	.18/13	.18/13	.18/12	.18/12
	19	.16/14	.16/14	.16/16	.15/16	.14/16	.12/16	.11/16	.13/16	.15/16	.15/16	.16/16	.16/14	.16/14
	21	.14/18	.14/18	.14/18	.13/18	.13/18	.11/18	.10/18	.12/18	.13/18	.13/18	.14/18	.14/18	.14/18
5	7	.44/ 7	.45/ 7	.47/ 7	.48/ 6	.46/ 6	.35/ 6	.25/ 6	.39/ 6	.35/ 7	.28/ 8	.23/ 9	.20/ 9	.19/ 9
	9	.45/ 7	.45/ 7	.45/ 7	.44/ 7	.39/ 6	.30/ 6	.22/ 8	.31/ 6	.30/ 7	.26/ 9	.23/10	.22/10	.21/10
	11	.39/ 8	.39/ 8	.38/ 7	.36/ 7	.32/ 7	.24/ 9	.19/10	.24/10	.24/ 9	.22/10	.21/10	.20/11	.20/11
	13	.33/ 8	.32/ 8	.31/ 8	.29/ 7	.26/ 7	.20/10	.17/11	.20/11	.20/10	.19/11	.18/11	.18/12	.18/12
	15	.27/ 8	.27/ 8	.26/ 8	.24/ 7	.21/12	.17/13	.15/13	.17/13	.17/13	.16/13	.16/12	.16/13	.16/13
	17	.23/10	.23/10	.22/11	.20/13	.18/14	.15/14	.13/14	.14/15	.15/15	.14/15	.14/14	.14/14	.14/14
	19	.20/14	.19/14	.19/14	.18/16	.16/16	.13/16	.12/16	.13/16	.13/17	.12/17	.12/17	.12/17	.12/17
	21	.17/16	.17/18	.16/18	.15/18	.14/18	.12/18	.10/18	.11/18	.11/19	.11/19	.11/20	.11/20	.11/20
10	7	.49/ 7	.49/ 7	.51/ 7	.52/ 7	.49/ 6	.39/ 6	.26/ 6	.34/ 6	.25/ 8	.18/10	.14/12	.12/13	.11/13
	9	.53/ 7	.53/ 7	.52/ 7	.49/ 7	.43/ 6	.33/ 6	.23/ 8	.27/ 8	.22/ 9	.18/11	.16/12	.14/13	.14/13
	11	.46/ 8	.46/ 8	.44/ 7	.41/ 7	.35/ 7	.27/ 6	.20/10	.22/10	.19/10	.17/12	.15/13	.14/13	.14/13
	13	.39/ 8	.38/ 8	.36/ 8	.33/ 7	.29/ 7	.22/10	.17/11	.18/12	.16/12	.15/13	.14/13	.13/13	.13/13
	15	.32/ 8	.32/ 8	.30/ 8	.28/ 7	.24/ 7	.19/13	.15/13	.15/13	.14/13	.13/14	.12/15	.12/13	.12/13
	17	.27/ 8	.26/ 8	.25/ 8	.23/ 7	.20/14	.16/14	.13/14	.13/15	.12/16	.12/17	.11/17	.11/13	.10/17
	19	.23/ 8	.22/ 8	.21/ 8	.20/16	.17/16	.14/16	.12/16	.12/17	.11/17	.10/18	.10/19	.10/20	.10/20
	21	.20/16	.19/16	.18/18	.17/18	.15/18	.12/18	.11/18	.11/19	.10/20	.09/20	.09/21	.09/22	.09/22
15	7	.52/ 8	.53/ 7	.55/ 7	.56/ 7	.54/ 7	.44/ 6	.27/ 6	.28/ 7	.19/10	.11/14	.08/17	.06/20	.06/20
	9	.60/ 8	.60/ 8	.59/ 7	.56/ 7	.49/ 7	.37/ 6	.24/ 8	.23/ 9	.18/10	.13/14	.10/17	.08/20	.08/20
	11	.54/ 8	.53/ 8	.51/ 7	.47/ 7	.40/ 7	.30/ 6	.20/10	.19/10	.16/10	.12/14	.10/17	.09/20	.09/20
	13	.45/ 8	.44/ 8	.42/ 7	.38/ 7	.32/ 7	.24/10	.18/11	.16/12	.14/10	.11/14	.10/17	.09/20	.09/20
	15	.37/ 8	.37/ 8	.35/ 8	.31/ 7	.27/ 7	.20/13	.15/13	.14/14	.12/15	.10/14	.09/17	.09/20	.08/20
	17	.31/ 8	.31/ 8	.29/ 8	.26/ 7	.22/ 7	.17/14	.13/14	.12/15	.11/17	.09/14	.09/17	.08/20	.08/20
	19	.26/ 8	.26/ 8	.25/ 8	.22/ 7	.19/16	.15/16	.12/16	.11/17	.10/19	.09/14	.08/17	.08/20	.07/20
	21	.23/ 8	.22/ 8	.21/ 8	.19/18	.16/18	.13/18	.11/18	.10/20	.09/21	.08/22	.07/17	.07/20	.07/20
20	7	.53/ 8	.54/ 8	.57/ 8	.60/ 7	.60/ 7	.50/ 6	.28/ 6	.24/ 7	.14/13	.07/19	.04/26	.03/31	.03/35
	9	.69/ 8	.69/ 8	.67/ 8	.64/ 7	.57/ 7	.42/ 6	.25/ 8	.21/10	.14/13	.08/19	.06/23	.05/26	.05/27
	11	.63/ 8	.62/ 8	.59/ 8	.55/ 7	.46/ 7	.34/ 6	.21/10	.18/11	.13/13	.09/19	.07/23	.06/26	.06/27
	13	.53/ 8	.52/ 8	.49/ 8	.45/ 7	.37/ 7	.27/ 6	.18/11	.15/13	.11/13	.09/19	.07/23	.06/26	.06/27
	15	.44/ 8	.43/ 8	.41/ 8	.37/ 7	.30/ 7	.23/13	.16/13	.13/14	.10/13	.08/19	.07/23	.06/26	.06/27
	17	.37/ 8	.36/ 8	.34/ 8	.30/ 7	.25/ 7	.19/14	.14/14	.12/16	.09/13	.08/19	.07/23	.06/26	.06/27
	19	.31/ 8	.30/ 8	.28/ 8	.26/ 7	.21/ 7	.17/16	.12/16	.10/18	.09/13	.07/19	.06/23	.06/26	.06/27
	21	.26/ 8	.26/ 8	.24/ 8	.22/ 7	.19/ 7	.14/18	.11/18	.09/20	.08/22	.07/19	.06/23	.06/26	.06/27
25	7	.52/ 8	.54/ 8	.58/ 8	.63/ 8	.66/ 7	.56/ 6	.29/ 6	.22/ 9	.10/17	.05/27	.05/52	.05/ 6	.05/ 6
	9	.77/ 9	.78/ 8	.77/ 8	.73/ 8	.65/ 7	.48/ 6	.25/ 8	.19/ 9	.10/17	.06/24	.05/33	.04/39	.04/48
	11	.73/ 9	.73/ 8	.70/ 8	.63/ 8	.53/ 7	.38/ 6	.21/10	.16/ 9	.10/17	.07/24	.05/30	.04/33	.04/35
	13	.62/ 9	.62/ 8	.59/ 8	.52/ 8	.43/ 7	.31/ 6	.18/11	.14/13	.09/17	.07/24	.05/30	.05/33	.04/33
	15	.52/ 9	.51/ 9	.48/ 8	.42/ 8	.35/ 7	.25/ 6	.16/13	.12/15	.09/17	.07/24	.05/30	.05/33	.05/33
	17	.43/ 9	.42/ 9	.40/ 8	.35/ 8	.29/ 7	.21/ 6	.14/14	.11/17	.08/17	.06/24	.05/30	.05/33	.05/33
	19	.36/ 9	.36/ 9	.34/ 8	.29/ 8	.24/ 7	.18/16	.12/16	.10/18	.08/17	.06/24	.05/30	.05/33	.05/33
	21	.31/ 9	.30/ 9	.29/ 8	.25/ 8	.21/ 7	.16/18	.11/18	.09/20	.07/17	.06/24	.05/30	.05/33	.05/33

ASR

LONGCRESTED
RMS VER ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{DE}, IN SECONDS
(ACC. X 100)
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.95/ 7	.99/ 7	1.11/ 6	1.33/ 6	1.51/ 5	1.18/ 5	.86/ 5	1.62/ 5	1.64/ 5	1.36/ 6	1.13/ 6	1.02/ 7	.98/ 7
	9	.89/ 7	.91/ 7	.97/ 7	1.09/ 6	1.15/ 6	.89/ 6	.67/ 6	1.16/ 5	1.23/ 6	1.10/ 6	.98/ 7	.91/ 7	.89/ 7
	11	.73/ 7	.74/ 7	.78/ 7	.84/ 6	.86/ 6	.67/ 6	.51/ 7	.85/ 5	.92/ 6	.85/ 6	.78/ 7	.74/ 7	.73/ 7
	13	.58/ 8	.59/ 7	.61/ 7	.65/ 6	.65/ 6	.51/ 6	.40/ 9	.64/ 5	.70/ 6	.65/ 6	.61/ 7	.59/ 7	.58/ 8
	15	.47/ 8	.47/ 8	.49/ 7	.51/ 6	.51/ 6	.41/ 6	.33/10	.50/ 5	.54/ 6	.52/ 6	.49/ 7	.47/ 8	.47/ 8
	17	.38/ 8	.39/ 8	.40/ 7	.41/ 6	.41/ 6	.33/ 6	.27/10	.40/ 5	.43/ 6	.42/ 6	.40/ 7	.38/ 8	.38/ 8
	19	.32/ 8	.32/ 8	.33/ 7	.34/ 6	.34/ 5	.27/ 6	.22/12	.33/ 5	.36/ 6	.34/ 6	.33/ 7	.32/ 8	.32/ 8
	21	.27/ 8	.27/ 8	.27/ 7	.28/ 6	.28/ 6	.23/ 6	.19/13	.27/ 5	.30/ 6	.28/ 6	.27/ 7	.27/ 8	.27/ 8
5	7	1.56/ 7	1.59/ 7	1.66/ 7	1.74/ 8	1.71/ 6	1.29/ 6	.87/ 5	1.38/ 5	1.06/ 6	.71/ 7	.53/ 8	.44/ 9	.41/ 9
	9	1.46/ 7	1.47/ 7	1.48/ 7	1.47/ 8	1.35/ 6	.99/ 6	.68/ 6	.98/ 5	.81/ 7	.61/ 8	.50/ 9	.44/10	.42/10
	11	1.19/ 7	1.18/ 7	1.17/ 7	1.14/ 7	1.02/ 6	.74/ 6	.52/ 6	.72/ 5	.61/ 7	.49/ 8	.42/10	.38/10	.37/10
	13	.94/ 7	.93/ 7	.92/ 7	.88/ 7	.78/ 6	.57/ 6	.41/ 9	.54/ 5	.47/ 7	.39/ 9	.34/10	.32/10	.31/10
	15	.74/ 7	.74/ 7	.72/ 7	.69/ 7	.61/ 6	.45/ 6	.33/10	.42/ 5	.37/ 7	.31/ 9	.28/10	.26/10	.26/11
	17	.60/ 7	.60/ 7	.58/ 7	.55/ 7	.49/ 6	.36/ 6	.27/10	.34/ 5	.30/ 7	.26/ 9	.23/10	.22/11	.22/11
	19	.49/ 7	.49/ 7	.48/ 7	.45/ 7	.40/ 6	.30/ 6	.23/12	.28/ 5	.25/ 7	.21/ 9	.20/10	.19/11	.18/11
	21	.41/ 7	.41/ 7	.40/ 7	.38/ 7	.33/ 6	.25/ 6	.19/13	.23/ 5	.21/ 7	.18/ 9	.17/10	.16/11	.16/11
10	7	1.94/ 7	1.97/ 7	2.02/ 7	2.06/ 7	1.95/ 6	1.48/ 6	.89/ 5	1.10/ 6	.59/ 8	.35/10	.22/12	.17/13	.16/13
	9	1.94/ 7	1.94/ 7	1.90/ 7	1.81/ 7	1.59/ 6	1.14/ 6	.70/ 6	.79/ 6	.49/ 8	.33/10	.24/12	.20/13	.19/13
	11	1.60/ 7	1.58/ 7	1.53/ 7	1.42/ 7	1.21/ 6	.86/ 6	.54/ 6	.58/ 6	.39/ 9	.28/11	.22/12	.19/13	.18/13
	13	1.27/ 7	1.25/ 7	1.20/ 7	1.10/ 7	.93/ 6	.66/ 6	.42/ 6	.44/ 6	.31/ 9	.23/11	.19/13	.17/13	.16/13
	15	1.01/ 7	.99/ 7	.95/ 7	.86/ 7	.73/ 6	.52/ 6	.34/10	.35/ 6	.25/10	.20/11	.16/13	.15/13	.14/13
	17	.81/ 7	.80/ 7	.76/ 7	.69/ 7	.58/ 6	.42/ 6	.28/10	.28/ 6	.21/10	.16/12	.14/13	.13/13	.12/13
	19	.67/ 7	.65/ 7	.62/ 7	.57/ 7	.48/ 6	.34/ 6	.23/11	.23/ 6	.17/10	.14/12	.12/13	.11/13	.11/13
	21	.55/ 7	.54/ 7	.52/ 7	.47/ 7	.39/ 6	.29/ 6	.20/13	.20/ 6	.15/10	.12/12	.11/13	.10/13	.09/13
15	7	2.25/ 7	2.28/ 7	2.34/ 7	2.38/ 7	2.27/ 6	1.74/ 6	.93/ 5	.79/ 6	.35/10	.16/14	.08/17	.06/20	.05/20
	9	2.44/ 8	2.42/ 8	2.36/ 7	2.22/ 7	1.92/ 7	1.36/ 6	.73/ 6	.59/ 7	.31/10	.17/14	.11/17	.08/20	.08/20
	11	2.05/ 8	2.02/ 8	1.94/ 7	1.76/ 7	1.47/ 7	1.02/ 6	.56/ 6	.45/ 7	.26/10	.16/14	.11/17	.09/20	.08/20
	13	1.64/ 8	1.61/ 8	1.53/ 7	1.37/ 7	1.13/ 7	.78/ 6	.44/ 6	.35/10	.22/10	.14/14	.10/17	.09/20	.08/20
	15	1.30/ 8	1.28/ 8	1.21/ 7	1.08/ 7	.88/ 7	.61/ 6	.35/10	.28/10	.18/10	.12/14	.09/17	.08/20	.08/20
	17	1.05/ 8	1.03/ 8	.97/ 7	.86/ 7	.71/ 7	.49/ 6	.29/10	.23/11	.15/10	.11/14	.08/17	.07/20	.07/20
	19	.86/ 8	.84/ 8	.79/ 7	.71/ 7	.58/ 7	.40/ 6	.24/10	.19/12	.13/10	.09/14	.08/17	.07/20	.07/20
	21	.72/ 8	.70/ 8	.66/ 7	.59/ 7	.48/ 7	.33/ 6	.20/12	.16/14	.11/10	.08/14	.07/17	.06/20	.06/20
20	7	2.43/ 8	2.46/ 8	2.58/ 8	2.69/ 7	2.61/ 7	2.04/ 6	.97/ 5	.59/ 7	.20/13	.06/19	.05/25	.07/ 3	.07/ 3
	9	2.95/ 8	2.92/ 8	2.85/ 8	2.68/ 7	2.30/ 7	1.61/ 6	.75/ 5	.46/ 7	.19/13	.08/19	.05/23	.05/26	.05/27
	11	2.58/ 8	2.53/ 8	2.40/ 8	2.18/ 7	1.79/ 7	1.21/ 6	.58/ 6	.36/ 7	.17/13	.09/19	.06/23	.05/26	.05/27
	13	2.08/ 8	2.04/ 8	1.91/ 8	1.70/ 7	1.38/ 7	.92/ 6	.45/ 6	.29/10	.15/13	.08/19	.06/23	.05/26	.05/27
	15	1.67/ 8	1.63/ 8	1.52/ 8	1.34/ 7	1.08/ 7	.72/ 6	.36/10	.23/11	.13/13	.08/19	.06/23	.05/26	.05/27
	17	1.35/ 8	1.31/ 8	1.22/ 8	1.08/ 7	.86/ 7	.58/ 6	.30/10	.19/12	.11/13	.07/19	.05/23	.05/26	.04/27
	19	1.10/ 8	1.07/ 8	1.00/ 8	.88/ 7	.70/ 7	.47/ 6	.25/10	.16/13	.10/13	.07/19	.05/23	.04/26	.04/27
	21	.92/ 8	.89/ 8	.83/ 8	.73/ 7	.58/ 7	.39/ 6	.21/12	.14/14	.09/13	.06/19	.05/23	.04/26	.04/27
25	7	2.50/ 8	2.58/ 8	2.73/ 8	2.91/ 8	2.95/ 7	2.38/ 6	1.01/ 5	.47/ 9	.10/17	.06/ 3	.14/ 4	.15/ 4	.15/ 4
	9	3.44/ 8	3.46/ 8	3.40/ 8	3.16/ 8	2.74/ 7	1.91/ 6	.78/ 5	.38/ 9	.11/17	.05/24	.09/ 4	.10/ 4	.10/ 4
	11	3.13/ 8	3.11/ 8	2.97/ 8	2.63/ 8	2.16/ 7	1.43/ 6	.60/ 5	.30/ 9	.11/17	.06/24	.07/30	.07/33	.07/35
	13	2.57/ 9	2.54/ 8	2.39/ 8	2.08/ 8	1.67/ 7	1.09/ 6	.47/ 5	.24/ 9	.10/17	.06/24	.05/30	.05/33	.05/33
	15	2.07/ 9	2.04/ 8	1.91/ 8	1.64/ 8	1.30/ 7	.85/ 6	.37/10	.20/ 9	.09/17	.05/24	.05/30	.04/33	.04/33
	17	1.68/ 9	1.65/ 8	1.54/ 8	1.32/ 8	1.04/ 7	.68/ 6	.30/10	.17/ 9	.08/17	.05/24	.04/30	.04/33	.04/33
	19	1.37/ 9	1.35/ 8	1.26/ 8	1.08/ 8	.85/ 7	.55/ 6	.25/11	.14/ 9	.07/17	.05/24	.04/30	.04/33	.03/33

ASR

LONGCRESTED
RMS ROLL IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{DE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.10/10	.18/10	.23/10	.23/10	.20/10	.18/10	.20/10	.22/10	.21/10	.17/10	.09/10	.00/10
	9	0.00/**	.24/10	.37/10	.44/10	.45/10	.43/10	.43/10	.44/10	.45/10	.43/10	.36/10	.23/10	.00/10
	11	0.00/**	.28/10	.43/10	.51/10	.53/10	.52/10	.52/10	.53/10	.53/10	.50/10	.43/10	.28/10	.00/10
	13	0.00/**	.26/10	.40/10	.47/10	.49/10	.49/10	.49/10	.49/10	.49/10	.46/10	.39/10	.25/10	.00/10
	15	0.00/**	.22/10	.34/10	.40/10	.42/10	.42/10	.42/10	.42/10	.42/10	.39/10	.33/10	.22/10	.00/10
	17	0.00/**	.18/10	.28/10	.33/10	.35/10	.35/10	.35/10	.35/10	.35/10	.33/10	.28/10	.18/10	.00/10
	19	0.00/**	.15/10	.23/10	.28/10	.29/10	.30/10	.30/10	.30/10	.29/10	.27/10	.23/10	.15/10	.00/10
	21	0.00/**	.13/10	.20/10	.23/10	.25/10	.25/10	.25/10	.25/10	.25/10	.23/10	.19/10	.12/10	.00/10
5	7	0.00/**	.05/ 8	.09/ 8	.13/ 8	.15/ 8	.16/10	.18/10	.28/10	.39/10	.49/10	.51/10	.39/10	.00/10
	9	0.00/**	.12/11	.23/11	.31/11	.35/11	.39/10	.43/10	.57/10	.67/10	.73/10	.70/10	.51/10	.00/10
	11	0.00/**	.19/12	.35/12	.45/11	.50/11	.53/10	.52/10	.63/11	.69/10	.70/10	.63/10	.45/10	.00/10
	13	0.00/**	.19/12	.36/12	.46/12	.50/11	.51/11	.49/10	.56/11	.60/10	.58/10	.51/10	.36/10	.00/10
	15	0.00/**	.17/12	.32/12	.41/12	.44/11	.45/11	.42/10	.47/11	.49/10	.47/10	.41/10	.29/10	.00/10
	17	0.00/**	.15/12	.27/12	.35/12	.38/11	.38/11	.35/10	.39/11	.40/10	.39/10	.33/10	.23/10	.00/10
	19	0.00/**	.13/12	.23/12	.29/12	.32/11	.32/11	.30/10	.33/11	.33/10	.32/10	.27/10	.19/10	.00/10
	21	0.00/**	.11/12	.20/12	.25/12	.27/11	.27/11	.25/10	.27/11	.28/10	.26/10	.23/10	.16/10	.00/10
10	7	0.00/**	.03/ 8	.06/ 7	.09/ 7	.11/ 8	.12/ 8	.17/10	.32/10	.66/10	1.17/10	.73/12	.20/13	.00/13
	9	0.00/**	.06/13	.11/13	.16/12	.22/11	.26/11	.34/10	.51/10	.76/10	1.04/10	.62/12	.19/13	.00/13
	11	0.00/**	.11/13	.19/13	.24/13	.32/12	.37/11	.41/10	.52/10	.66/10	.81/10	.47/12	.15/13	.00/13
	13	0.00/**	.13/13	.22/13	.27/13	.34/13	.37/11	.39/10	.46/10	.54/10	.62/10	.36/12	.12/13	.00/13
	15	0.00/**	.13/13	.21/13	.25/13	.31/13	.33/12	.34/10	.38/10	.43/10	.48/10	.28/12	.10/13	.00/13
	17	0.00/**	.11/13	.19/13	.23/13	.27/13	.29/12	.29/10	.32/10	.35/10	.38/10	.22/12	.08/13	.00/13
	19	0.00/**	.10/13	.17/13	.20/13	.23/13	.24/12	.24/10	.26/10	.29/10	.31/10	.18/12	.06/13	.00/13
	21	0.00/**	.09/13	.14/13	.17/13	.20/13	.21/12	.21/10	.22/10	.24/10	.26/10	.15/12	.05/13	.00/13
15	7	0.00/**	.02/ 8	.04/ 8	.06/ 7	.08/ 7	.09/ 8	.15/ 9	.36/10	1.09/10	.43/14	.17/17	.07/20	.00/21
	9	0.00/**	.04/11	.07/11	.10/11	.13/11	.18/11	.27/10	.46/10	.89/10	.39/14	.17/17	.08/20	.00/20
	11	0.00/**	.08/14	.12/14	.16/13	.19/13	.25/12	.32/10	.43/10	.68/10	.32/14	.15/17	.07/20	.00/20
	13	0.00/**	.12/14	.15/14	.19/14	.21/13	.26/12	.30/10	.37/10	.53/10	.25/14	.13/17	.06/20	.00/20
	15	0.00/**	.13/14	.16/14	.19/14	.21/13	.24/12	.27/10	.31/11	.41/10	.20/14	.10/17	.05/20	.00/20
	17	0.00/**	.12/14	.15/14	.18/14	.19/13	.21/13	.23/10	.26/11	.33/10	.17/14	.09/17	.04/20	.00/20
	19	0.00/**	.11/14	.13/14	.16/14	.17/13	.18/13	.20/10	.21/11	.27/10	.14/14	.07/17	.03/20	.00/20
	21	0.00/**	.09/14	.12/14	.14/14	.14/13	.16/13	.17/11	.18/11	.22/10	.12/14	.06/17	.03/20	.00/20
20	7	0.00/**	.02/ 8	.03/ 8	.05/ 8	.06/ 7	.08/ 8	.14/ 8	.47/10	.66/13	.32/19	.14/31	.27/ 4	.00/ 4
	9	0.00/**	.03/10	.05/11	.07/11	.10/11	.15/11	.25/10	.52/10	.56/13	.26/19	.13/23	.18/ 4	.00/ 4
	11	0.00/**	.05/14	.09/14	.12/14	.16/13	.21/12	.30/10	.46/10	.44/13	.21/19	.12/23	.13/ 4	.00/27
	13	0.00/**	.07/16	.13/14	.16/14	.19/13	.22/13	.29/10	.38/11	.34/13	.17/19	.10/23	.10/26	.00/27
	15	0.00/**	.08/16	.15/14	.16/14	.19/14	.21/13	.25/10	.31/11	.27/13	.14/19	.08/23	.08/26	.00/27
	17	0.00/**	.08/16	.14/14	.15/14	.17/14	.19/13	.22/11	.26/11	.22/13	.12/19	.07/23	.06/26	.00/27
	19	0.00/**	.07/16	.13/14	.14/14	.15/14	.16/13	.19/11	.21/11	.18/13	.10/19	.06/23	.05/26	.00/27
	21	0.00/**	.07/16	.11/14	.12/14	.14/14	.14/13	.16/11	.18/11	.15/13	.09/19	.05/23	.04/26	.00/27
25	7	0.00/**	.01/ 8	.02/ 8	.04/ 8	.05/ 8	.07/ 8	.14/ 8	.68/ 9	.37/17	.21/35	.14/ 7	.11/ 5	.00/ 6
	9	0.00/**	.02/10	.04/10	.06/11	.08/11	.12/11	.23/10	.63/10	.33/17	.19/24	.13/45	.08/ 5	.00/ 6
	11	0.00/**	.03/16	.06/14	.09/14	.12/13	.18/13	.28/10	.52/11	.28/17	.17/24	.11/30	.07/42	.00/48
	13	0.00/**	.06/16	.09/16	.13/14	.16/14	.20/13	.26/10	.41/11	.23/17	.14/24	.09/30	.05/33	.00/33
	15	0.00/**	.07/16	.10/16	.14/14	.16/14	.19/13	.23/11	.33/11	.18/17	.12/24	.08/30	.04/33	.00/33
	17	0.00/**	.07/16	.10/16	.14/16	.15/14	.17/13	.20/11	.27/11	.15/17	.10/24	.06/30	.04/33	.00/33
	19	0.00/**	.07/16	.09/16	.12/16	.14/14	.15/13	.17/11	.22/11	.13/17	.08/24	.06/30	.03/33	.00/33
	21	0.00/**	.06/16	.09/16	.11/16	.12/14	.13/13	.15/11	.19/11	.11/17	.07/24	.05/30	.03/33	.00/33

ASR

LONGCRESTED

RMS ROLL VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.08/10	.14/ 8	.19/ 7	.20/ 8	.16/10	.15/10	.17/10	.19/ 8	.17/ 8	.13/ 8	.07/10	.00/10
	9	0.00/**	.15/10	.24/10	.29/10	.30/10	.28/10	.28/10	.29/10	.30/10	.28/10	.24/10	.15/10	.00/10
	11	0.00/**	.17/10	.27/10	.32/10	.33/10	.32/10	.32/10	.33/10	.33/10	.32/10	.27/10	.17/10	.00/10
	13	0.00/**	.16/10	.24/10	.29/10	.30/10	.30/10	.29/10	.30/10	.30/10	.28/10	.24/10	.15/10	.00/10
	15	0.00/**	.13/10	.20/10	.24/10	.25/10	.25/10	.25/10	.25/10	.25/10	.24/10	.20/10	.13/10	.00/10
	17	0.00/**	.11/10	.17/10	.20/10	.21/10	.21/10	.21/10	.21/10	.21/10	.20/10	.17/10	.11/10	.00/10
	19	0.00/**	.09/10	.14/10	.17/10	.17/10	.17/10	.17/10	.17/10	.17/10	.16/10	.14/10	.09/10	.00/10
	21	0.00/**	.08/10	.12/10	.14/10	.15/10	.15/10	.14/10	.15/10	.15/10	.14/10	.12/10	.07/10	.00/10
5	7	0.00/**	.05/ 7	.10/ 7	.14/ 7	.16/ 7	.14/ 8	.15/10	.22/10	.29/10	.34/10	.33/10	.25/10	.00/10
	9	0.00/**	.09/11	.18/11	.22/11	.24/11	.26/10	.28/10	.37/10	.43/10	.46/10	.43/10	.31/10	.00/10
	11	0.00/**	.12/12	.23/12	.29/11	.31/11	.32/10	.32/10	.39/10	.42/10	.43/10	.38/10	.27/10	.00/10
	13	0.00/**	.12/12	.23/12	.29/11	.31/11	.31/10	.29/10	.34/11	.36/10	.35/10	.31/10	.22/10	.00/10
	15	0.00/**	.11/12	.20/12	.25/12	.27/11	.27/10	.25/10	.28/11	.29/10	.28/10	.25/10	.17/10	.00/10
	17	0.00/**	.09/12	.17/12	.21/12	.23/11	.22/11	.21/10	.23/11	.24/10	.23/10	.20/10	.14/10	.00/10
	19	0.00/**	.08/12	.14/12	.18/12	.19/11	.19/11	.17/10	.19/11	.20/10	.19/10	.16/10	.11/10	.00/10
	21	0.00/**	.07/12	.12/12	.15/12	.16/11	.16/11	.14/10	.16/11	.16/10	.16/10	.13/10	.09/10	.00/10
10	7	0.00/**	.04/ 7	.07/ 7	.11/ 7	.13/ 6	.12/ 8	.14/ 8	.24/10	.44/10	.72/10	.40/12	.10/13	.00/13
	9	0.00/**	.05/13	.10/13	.13/11	.17/11	.18/10	.23/10	.33/10	.48/10	.62/10	.33/12	.09/13	.00/13
	11	0.00/**	.07/13	.13/13	.17/13	.21/12	.23/11	.26/10	.32/10	.41/10	.48/10	.25/12	.07/13	.00/13
	13	0.00/**	.08/13	.14/13	.17/13	.22/12	.23/11	.23/10	.28/10	.32/10	.36/10	.19/12	.06/13	.00/13
	15	0.00/**	.08/13	.13/13	.16/13	.19/12	.20/11	.20/10	.23/10	.26/10	.28/10	.15/12	.04/13	.00/13
	17	0.00/**	.07/13	.12/13	.14/13	.17/13	.17/11	.17/10	.18/10	.21/10	.22/10	.12/12	.04/13	.00/13
	19	0.00/**	.06/13	.10/13	.12/13	.14/13	.14/11	.14/10	.15/10	.17/10	.18/10	.09/12	.03/13	.00/13
	21	0.00/**	.05/13	.09/13	.10/13	.12/13	.12/11	.12/10	.13/10	.14/10	.15/10	.08/12	.02/13	.00/13
15	7	0.00/**	.03/ 8	.06/ 7	.08/ 7	.10/ 7	.10/ 8	.13/ 8	.26/10	.66/10	.19/14	.06/17	.02/20	.00/20
	9	0.00/**	.04/ 8	.07/ 8	.10/10	.12/10	.14/10	.18/10	.30/10	.53/10	.17/14	.06/17	.02/20	.00/20
	11	0.00/**	.06/14	.09/14	.12/13	.14/13	.17/11	.20/10	.27/10	.40/10	.14/14	.05/17	.02/20	.00/20
	13	0.00/**	.08/14	.10/14	.13/13	.14/13	.16/12	.18/10	.22/10	.30/10	.11/14	.04/17	.02/20	.00/20
	15	0.00/**	.08/14	.10/14	.12/14	.13/13	.15/12	.16/10	.18/10	.23/10	.09/14	.04/17	.01/20	.00/20
	17	0.00/**	.07/14	.09/14	.11/14	.11/13	.13/12	.13/10	.15/10	.19/10	.07/14	.03/17	.01/20	.00/20
	19	0.00/**	.06/14	.08/14	.09/14	.10/13	.11/12	.11/10	.12/10	.15/10	.06/14	.02/17	.01/20	.00/20
	21	0.00/**	.06/14	.07/14	.08/14	.08/13	.09/12	.09/10	.10/10	.12/10	.05/14	.02/17	.01/20	.00/20
20	7	0.00/**	.02/ 8	.05/ 7	.07/ 7	.09/ 7	.09/ 8	.13/ 8	.33/10	.30/13	.14/ 3	.06/ 4	.16/ 4	.00/ 4
	9	0.00/**	.03/ 9	.06/ 8	.08/ 8	.10/10	.12/10	.17/10	.33/10	.26/13	.10/19	.04/23	.10/ 4	.00/ 4
	11	0.00/**	.04/14	.08/14	.10/13	.12/13	.14/12	.19/10	.28/10	.20/13	.08/19	.03/23	.07/ 4	.00/ 4
	13	0.00/**	.05/14	.09/14	.11/14	.12/13	.14/13	.17/10	.23/10	.15/13	.06/19	.03/23	.05/ 4	.00/ 4
	15	0.00/**	.05/16	.10/14	.11/14	.12/13	.13/13	.15/10	.18/10	.12/13	.05/19	.02/23	.04/ 4	.00/27
	17	0.00/**	.05/16	.09/14	.10/14	.11/14	.11/13	.12/10	.15/11	.10/13	.04/19	.02/23	.03/ 4	.00/27
	19	0.00/**	.05/16	.08/14	.09/14	.09/14	.09/13	.10/10	.12/11	.08/13	.03/19	.02/23	.02/ 4	.00/27
	21	0.00/**	.04/16	.07/14	.07/14	.08/14	.08/13	.09/10	.10/11	.07/13	.03/19	.01/23	.02/ 4	.00/27
25	7	0.00/**	.02/ 7	.04/ 7	.06/ 7	.07/ 7	.08/ 7	.12/ 8	.45/ 9	.12/17	.07/ 4	.05/ 5	.05/ 5	.00/ 6
	9	0.00/**	.02/ 9	.05/ 9	.07/ 8	.08/10	.10/10	.16/10	.39/10	.11/17	.05/24	.03/ 5	.04/ 5	.00/ 6
	11	0.00/**	.03/16	.06/14	.08/14	.10/13	.12/12	.17/10	.31/10	.10/17	.04/24	.03/30	.03/ 5	.00/ 6
	13	0.00/**	.04/16	.06/16	.09/14	.11/14	.13/13	.16/10	.24/10	.08/17	.04/24	.02/30	.02/ 5	.00/ 6
	15	0.00/**	.05/16	.07/16	.09/14	.10/14	.12/13	.14/10	.19/11	.06/17	.03/24	.02/30	.02/ 5	.00/33
	17	0.00/**	.05/16	.07/16	.09/14	.10/14	.10/13	.12/10	.15/11	.05/17	.03/24	.01/30	.01/33	.00/33
	19	0.00/**	.04/16	.06/16	.08/14	.08/14	.09/13	.10/10	.12/11	.04/17	.02/24	.01/30	.01/33	.00/33
	21	0.00/**	.04/16	.05/16	.07/16	.07/14	.08/13	.08/10	.10/11	.04/17	.02/24	.01/30	.01/33	.00/33

ASR

LONGCRESTED

RMS ROLL ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.07/ 7	.13/ 7	.18/ 6	.20/ 6	.16/ 8	.14/ 8	.16/ 7	.17/ 7	.15/ 7	.11/ 7	.06/ 7	.00/10
	9	0.00/**	.10/10	.17/10	.21/10	.22/10	.20/10	.19/10	.20/10	.21/10	.20/10	.16/10	.10/10	.00/10
	11	0.00/**	.11/10	.18/10	.21/10	.22/10	.21/10	.20/10	.21/10	.22/10	.21/10	.17/10	.11/10	.00/10
	13	0.00/**	.10/10	.15/10	.18/10	.19/10	.19/10	.18/10	.19/10	.19/10	.18/10	.15/10	.10/10	.00/10
	15	0.00/**	.08/10	.13/10	.15/10	.16/10	.15/10	.15/10	.16/10	.16/10	.15/10	.13/10	.08/10	.00/10
	17	0.00/**	.07/10	.11/10	.13/10	.13/10	.13/10	.13/10	.13/10	.13/10	.12/10	.10/10	.07/10	.00/10
	19	0.00/**	.06/10	.09/10	.10/10	.11/10	.11/10	.10/10	.11/10	.11/10	.10/10	.09/10	.05/10	.00/10
	21	0.00/**	.05/10	.07/10	.09/10	.09/10	.09/10	.09/10	.09/10	.09/10	.08/10	.07/10	.05/10	.00/10
5	7	0.00/**	.05/ 7	.11/ 7	.15/ 6	.18/ 6	.15/ 7	.14/ 8	.18/10	.22/10	.24/10	.22/10	.16/10	.00/10
	9	0.00/**	.07/11	.13/11	.17/11	.19/11	.19/10	.19/10	.25/10	.28/10	.30/10	.27/10	.19/10	.00/10
	11	0.00/**	.08/12	.15/11	.20/11	.21/11	.21/10	.20/10	.25/10	.27/10	.27/10	.24/10	.17/10	.00/10
	13	0.00/**	.08/12	.15/12	.19/11	.20/11	.19/10	.18/10	.21/10	.22/10	.22/10	.19/10	.13/10	.00/10
	15	0.00/**	.07/12	.13/12	.16/11	.17/11	.16/10	.15/10	.17/10	.18/10	.17/10	.15/10	.10/10	.00/10
	17	0.00/**	.06/12	.11/12	.13/11	.14/11	.14/10	.13/10	.14/10	.15/10	.14/10	.12/10	.08/10	.00/10
	19	0.00/**	.05/12	.09/12	.11/11	.12/11	.11/10	.10/10	.12/10	.12/10	.11/10	.10/10	.07/10	.00/10
	21	0.00/**	.04/12	.08/12	.09/11	.10/11	.10/10	.09/10	.10/10	.10/10	.09/10	.08/10	.06/10	.00/10
10	7	0.00/**	.05/ 7	.10/ 7	.14/ 7	.16/ 6	.13/ 6	.13/ 8	.19/ 9	.31/10	.45/10	.21/12	.05/13	.00/13
	9	0.00/**	.05/ 7	.10/ 7	.14/ 7	.16/11	.15/10	.16/10	.22/10	.31/10	.38/10	.18/12	.04/13	.00/13
	11	0.00/**	.06/13	.10/13	.13/13	.16/12	.16/11	.17/10	.21/10	.26/10	.29/10	.13/12	.03/13	.00/13
	13	0.00/**	.06/13	.10/13	.13/13	.15/12	.15/11	.15/10	.17/10	.20/10	.22/10	.10/12	.03/13	.00/13
	15	0.00/**	.05/13	.09/13	.11/13	.13/12	.13/11	.12/10	.14/10	.16/10	.17/10	.08/12	.02/13	.00/13
	17	0.00/**	.05/13	.08/13	.09/13	.11/12	.11/11	.10/10	.11/10	.13/10	.13/10	.06/12	.02/13	.00/13
	19	0.00/**	.04/13	.07/13	.08/13	.09/12	.09/11	.08/10	.09/10	.10/10	.11/10	.05/12	.01/13	.00/13
	21	0.00/**	.03/13	.06/13	.07/13	.08/12	.07/11	.07/10	.08/10	.08/10	.09/10	.04/12	.01/13	.00/13
15	7	0.00/**	.04/ 7	.09/ 7	.13/ 7	.15/ 6	.12/ 6	.13/ 8	.20/ 9	.40/10	.08/14	.02/17	.01/20	.00/20
	9	0.00/**	.05/ 8	.09/ 8	.12/ 7	.13/ 7	.12/10	.14/10	.20/10	.32/10	.07/14	.02/17	.01/20	.00/20
	11	0.00/**	.05/14	.08/13	.11/13	.12/12	.12/11	.13/10	.17/10	.23/10	.06/14	.02/17	.01/20	.00/20
	13	0.00/**	.05/14	.08/14	.10/13	.11/13	.11/11	.12/10	.14/10	.18/10	.05/14	.02/17	.01/20	.00/20
	15	0.00/**	.05/14	.07/14	.09/13	.09/13	.10/12	.10/10	.11/10	.14/10	.04/14	.01/17	.00/20	.00/20
	17	0.00/**	.05/14	.06/14	.08/13	.08/13	.08/12	.08/10	.09/10	.11/10	.03/14	.01/17	.00/20	.00/20
	19	0.00/**	.04/14	.06/14	.06/13	.07/13	.07/12	.07/10	.07/10	.09/10	.02/14	.01/17	.00/20	.00/20
	21	0.00/**	.04/14	.05/14	.05/13	.06/13	.06/12	.06/10	.06/10	.07/10	.02/14	.01/17	.00/20	.00/20
20	7	0.00/**	.04/ 7	.08/ 7	.12/ 6	.14/ 6	.12/ 6	.13/ 7	.24/ 9	.14/13	.08/ 3	.04/ 4	.09/ 4	.00/ 4
	9	0.00/**	.04/ 8	.08/ 8	.11/ 8	.12/ 7	.11/10	.13/10	.22/10	.12/13	.05/ 3	.03/ 4	.06/ 4	.00/ 4
	11	0.00/**	.04/14	.08/14	.10/13	.11/13	.11/11	.13/10	.18/10	.09/13	.04/19	.02/23	.04/ 4	.00/ 4
	13	0.00/**	.04/14	.08/14	.09/14	.10/13	.10/12	.11/10	.14/10	.07/13	.03/19	.01/23	.03/ 4	.00/ 4
	15	0.00/**	.04/14	.07/14	.08/14	.09/13	.09/12	.09/10	.11/10	.06/13	.02/19	.01/23	.02/ 4	.00/ 4
	17	0.00/**	.04/16	.06/14	.07/14	.07/13	.07/13	.08/10	.09/10	.04/13	.02/19	.01/23	.02/ 4	.00/ 4
	19	0.00/**	.03/16	.06/14	.06/14	.06/13	.06/13	.06/10	.07/10	.04/13	.01/19	.01/23	.01/ 4	.00/ 4
	21	0.00/**	.03/16	.05/14	.05/14	.05/13	.05/13	.05/10	.06/10	.03/13	.01/19	.01/23	.01/ 4	.00/ 4
25	7	0.00/**	.04/ 7	.08/ 7	.11/ 7	.13/ 6	.11/ 6	.12/ 7	.30/ 9	.04/17	.05/ 4	.03/ 4	.03/ 5	.00/ 6
	9	0.00/**	.04/ 8	.07/ 8	.10/ 8	.11/ 7	.10/10	.13/10	.25/ 9	.04/17	.03/ 4	.02/ 4	.02/ 5	.00/ 6
	11	0.00/**	.04/ 9	.07/ 9	.09/12	.10/12	.10/11	.12/10	.19/10	.04/17	.02/24	.01/ 4	.02/ 5	.00/ 6
	13	0.00/**	.04/16	.06/14	.08/14	.09/13	.09/13	.10/10	.15/10	.03/17	.02/24	.01/ 4	.01/ 5	.00/ 6
	15	0.00/**	.04/16	.06/16	.07/14	.08/14	.08/13	.09/10	.11/10	.02/17	.01/24	.01/30	.01/ 5	.00/ 6
	17	0.00/**	.03/16	.05/16	.07/14	.07/14	.07/13	.07/10	.09/10	.02/17	.01/24	.01/30	.01/ 5	.00/ 6
	19	0.00/**	.03/16	.04/16	.06/14	.06/14	.06/13	.06/10	.07/10	.02/17	.01/24	.01/30	.01/ 5	.00/ 6
	21	0.00/**	.03/16	.04/16	.05/14	.05/14	.05/13	.05/10	.06/10	.01/17	.01/24	.00/30	.00/ 5	.00/ 6

ASR

LONGCRESTED
RMS PITCH IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.17/ 7	.18/ 7	.19/ 7	.20/ 6	.20/ 6	.14/ 6	.02/ 5	.15/ 5	.19/ 6	.19/ 7	.17/ 7	.16/ 7	.16/ 7
	9	.19/ 8	.19/ 8	.19/ 8	.19/ 7	.17/ 6	.11/ 6	.02/ 5	.11/ 6	.16/ 7	.18/ 7	.18/ 8	.18/ 8	.18/ 8
	11	.17/ 9	.17/ 9	.17/ 9	.16/ 8	.14/ 7	.08/ 6	.01/ 5	.09/ 6	.13/ 7	.15/ 8	.16/ 9	.17/ 9	.17/ 9
	13	.15/10	.15/10	.14/10	.13/ 9	.11/ 9	.07/ 6	.01/ 5	.07/ 6	.11/ 9	.13/10	.14/10	.14/10	.15/10
	15	.13/10	.13/10	.12/10	.11/10	.09/10	.05/ 6	.01/ 5	.05/ 6	.09/10	.11/10	.12/10	.12/10	.13/11
	17	.11/12	.11/12	.10/11	.09/11	.07/10	.04/10	.01/ 5	.04/10	.07/10	.09/11	.10/12	.11/12	.11/12
	19	.10/13	.09/13	.09/13	.08/13	.06/12	.04/10	.00/ 5	.04/11	.06/12	.08/13	.09/13	.09/13	.09/13
	21	.08/14	.08/14	.08/14	.07/14	.05/13	.03/13	.00/ 5	.03/13	.05/13	.07/14	.07/14	.08/14	.08/14
5	7	.21/ 7	.21/ 7	.22/ 7	.22/ 7	.21/ 6	.14/ 6	.01/ 5	.14/ 6	.17/ 7	.16/ 8	.14/ 9	.13/ 9	.13/10
	9	.23/ 8	.23/ 8	.22/ 7	.21/ 7	.18/ 6	.11/ 6	.01/ 5	.11/ 6	.15/ 8	.15/ 9	.15/10	.15/10	.15/10
	11	.20/ 8	.20/ 8	.19/ 8	.18/ 7	.14/ 7	.08/ 6	.01/ 5	.09/ 6	.12/ 9	.14/10	.14/10	.15/11	.15/11
	13	.17/10	.17/10	.16/10	.15/ 8	.11/ 7	.07/ 6	.01/ 5	.07/10	.10/10	.12/11	.13/11	.13/12	.13/12
	15	.15/10	.14/10	.14/10	.12/10	.09/ 7	.05/ 6	.00/12	.05/10	.08/11	.10/12	.11/12	.11/13	.12/13
	17	.12/11	.12/11	.11/10	.10/10	.08/10	.04/ 8	.00/13	.04/11	.07/12	.08/13	.09/13	.10/13	.10/13
	19	.11/13	.10/13	.10/12	.08/11	.06/10	.04/ 6	.00/13	.04/12	.06/13	.07/14	.08/14	.09/14	.09/15
	21	.09/14	.09/14	.08/13	.07/13	.05/12	.03/ 6	.00/13	.03/13	.05/13	.06/14	.07/14	.08/16	.08/16
10	7	.21/ 7	.21/ 7	.22/ 7	.22/ 7	.20/ 6	.14/ 6	.01/ 4	.14/ 6	.15/ 8	.14/10	.12/12	.11/13	.11/13
	9	.24/ 8	.24/ 8	.24/ 7	.22/ 7	.18/ 7	.11/ 6	.01/10	.11/ 7	.13/ 9	.14/11	.14/12	.13/13	.13/13
	11	.22/ 8	.22/ 8	.21/ 8	.19/ 7	.15/ 7	.09/ 6	.01/10	.09/ 9	.11/10	.12/12	.13/13	.13/13	.13/13
	13	.19/ 8	.19/ 8	.17/ 8	.15/ 8	.12/ 7	.07/ 6	.01/11	.07/10	.09/11	.11/12	.11/13	.12/13	.12/13
	15	.16/ 9	.16/ 9	.14/ 8	.13/ 8	.10/ 7	.05/ 6	.01/12	.05/11	.08/12	.09/13	.10/14	.10/13	.11/13
	17	.13/10	.13/10	.12/ 9	.10/ 8	.08/ 7	.04/ 6	.01/12	.05/12	.07/13	.08/13	.09/14	.09/13	.09/13
	19	.11/11	.11/11	.10/10	.09/ 8	.07/ 7	.04/ 6	.00/13	.04/12	.06/13	.07/14	.08/15	.08/13	.08/13
	21	.10/12	.09/12	.09/11	.07/10	.06/ 7	.03/ 6	.00/13	.03/13	.05/13	.06/15	.07/15	.07/13	.07/16
15	7	.19/ 8	.20/ 8	.20/ 7	.21/ 7	.20/ 7	.15/ 6	.02/ 4	.13/ 7	.14/10	.12/14	.10/17	.10/20	.09/20
	9	.25/ 8	.25/ 8	.24/ 8	.22/ 7	.19/ 7	.12/ 6	.02/10	.11/ 8	.13/10	.13/14	.12/17	.12/20	.12/20
	11	.23/ 8	.23/ 8	.22/ 8	.19/ 7	.15/ 7	.09/ 6	.01/10	.08/10	.11/10	.11/14	.11/17	.12/20	.12/20
	13	.20/ 8	.19/ 8	.18/ 8	.16/ 8	.12/ 7	.07/ 6	.01/11	.07/10	.09/10	.10/14	.10/17	.11/20	.11/20
	15	.17/ 8	.16/ 8	.15/ 8	.13/ 8	.10/ 7	.06/ 6	.01/12	.06/11	.08/10	.09/14	.09/17	.10/20	.10/20
	17	.14/ 9	.14/ 8	.13/ 8	.11/ 8	.08/ 7	.04/ 6	.01/12	.05/12	.06/10	.07/14	.08/17	.09/20	.09/20
	19	.12/ 9	.12/ 9	.11/ 8	.09/ 8	.07/ 7	.04/ 6	.01/13	.04/13	.05/10	.06/14	.07/17	.08/20	.08/20
	21	.10/ 9	.10/ 9	.09/ 8	.08/ 8	.06/ 7	.03/ 6	.01/13	.03/13	.05/10	.06/14	.06/17	.07/20	.07/20
20	7	.17/ 8	.18/ 8	.19/ 8	.20/ 7	.20/ 7	.16/ 6	.03/ 4	.13/ 7	.14/13	.11/19	.10/30	.09/**	.09/**
	9	.25/ 8	.25/ 8	.24/ 8	.23/ 8	.20/ 7	.13/ 6	.02/ 4	.11/ 8	.13/13	.12/19	.11/23	.11/27	.11/30
	11	.24/ 8	.24/ 8	.22/ 8	.20/ 8	.16/ 7	.10/ 6	.02/10	.09/10	.11/13	.11/19	.11/23	.11/26	.11/27
	13	.21/ 8	.20/ 8	.19/ 8	.17/ 8	.13/ 7	.08/ 6	.02/11	.07/11	.09/13	.10/19	.10/23	.10/26	.11/27
	15	.18/ 8	.17/ 8	.16/ 8	.14/ 8	.10/ 7	.06/ 6	.01/12	.06/12	.08/13	.08/19	.09/23	.09/26	.10/27
	17	.15/ 8	.14/ 8	.13/ 8	.11/ 8	.08/ 7	.05/ 6	.01/13	.05/13	.06/13	.07/19	.08/23	.08/26	.08/27
	19	.12/ 8	.12/ 8	.11/ 8	.09/ 8	.07/ 7	.04/ 6	.01/13	.04/13	.05/13	.06/19	.07/23	.07/26	.08/27
	21	.11/ 8	.10/ 8	.09/ 8	.08/ 8	.06/ 7	.03/ 6	.01/13	.03/13	.05/13	.05/19	.06/23	.07/26	.07/27
25	7	.15/ 8	.16/ 8	.18/ 8	.19/ 8	.21/ 7	.17/ 6	.03/ 4	.14/ 9	.15/17	.14/35	.11/**	.10/**	.09/ 8
	9	.25/ 9	.25/ 9	.25/ 8	.24/ 8	.21/ 7	.14/ 6	.02/ 4	.11/ 9	.13/17	.14/24	.13/**	.13/**	.12/**
	11	.25/ 9	.25/ 9	.24/ 8	.21/ 8	.17/ 7	.11/ 6	.02/10	.09/ 9	.11/17	.12/24	.12/30	.13/37	.12/48
	13	.22/ 9	.21/ 9	.20/ 8	.18/ 8	.14/ 7	.08/ 6	.02/11	.07/ 9	.09/17	.10/24	.11/30	.12/33	.11/33
	15	.18/ 9	.18/ 9	.17/ 8	.15/ 8	.11/ 7	.07/ 6	.01/12	.06/ 9	.07/17	.09/24	.10/30	.10/33	.10/33
	17	.15/ 9	.15/ 9	.14/ 8	.12/ 8	.09/ 7	.05/ 6	.01/13	.05/ 9	.06/17	.08/24	.08/30	.09/33	.09/33
	19	.13/ 9	.13/ 9	.12/ 8	.10/ 8	.08/ 7	.04/ 6	.01/13	.04/ 9	.05/17	.07/24	.07/30	.08/33	.08/33
	21	.11/ 9	.11/ 9	.10/ 8	.08/ 8	.06/ 7	.04/ 6	.01/13	.03/ 9	.05/17	.06/24	.06/30	.07/33	.07/33

ASR

LONGCRESTED

RMS PITCH VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.16/ 7	.16/ 7	.18/ 6	.21/ 6	.22/ 6	.16/ 5	.03/ 5	.17/ 5	.21/ 6	.19/ 6	.16/ 7	.15/ 7	.15/ 7
	9	.16/ 7	.16/ 7	.16/ 7	.17/ 6	.17/ 6	.12/ 5	.02/ 5	.12/ 5	.16/ 6	.16/ 7	.15/ 7	.15/ 7	.15/ 7
	11	.13/ 8	.13/ 8	.13/ 7	.14/ 7	.13/ 6	.09/ 5	.02/ 5	.09/ 5	.12/ 6	.13/ 7	.13/ 8	.13/ 8	.13/ 8
	13	.11/ 8	.11/ 8	.11/ 8	.11/ 7	.10/ 6	.06/ 6	.01/ 5	.07/ 5	.09/ 6	.10/ 7	.10/ 8	.10/ 8	.10/ 8
	15	.09/ 9	.09/ 8	.09/ 8	.08/ 7	.08/ 6	.05/ 6	.01/ 5	.05/ 5	.07/ 6	.08/ 7	.08/ 8	.08/ 9	.08/ 9
	17	.07/ 9	.07/ 9	.07/ 8	.07/ 7	.06/ 6	.04/ 6	.01/ 5	.04/ 5	.06/ 6	.06/ 7	.07/ 8	.07/ 9	.07/ 9
	19	.06/ 9	.06/ 9	.06/ 8	.06/ 7	.05/ 6	.03/ 6	.01/ 5	.03/ 5	.05/ 6	.05/ 8	.06/ 9	.06/ 9	.06/ 9
	21	.05/ 9	.05/ 9	.05/ 8	.05/ 7	.04/ 6	.03/ 6	.00/ 5	.03/ 5	.04/ 6	.04/ 8	.05/ 9	.05/ 9	.05/10
5	7	.23/ 7	.23/ 7	.24/ 7	.25/ 8	.24/ 8	.16/ 6	.02/ 4	.16/ 5	.16/ 6	.12/ 8	.10/ 8	.09/ 9	.09/ 9
	9	.23/ 7	.23/ 7	.23/ 7	.22/ 7	.19/ 8	.12/ 6	.01/ 4	.11/ 5	.13/ 7	.11/ 8	.10/ 9	.10/10	.10/10
	11	.19/ 7	.19/ 7	.18/ 7	.17/ 7	.15/ 6	.09/ 6	.01/ 4	.08/ 6	.10/ 7	.09/ 9	.09/10	.09/10	.09/10
	13	.15/ 7	.15/ 7	.15/ 7	.13/ 7	.11/ 6	.07/ 6	.01/ 4	.06/ 6	.07/ 8	.07/ 9	.07/10	.07/11	.07/11
	15	.12/ 8	.12/ 7	.12/ 7	.11/ 7	.09/ 6	.05/ 6	.01/ 4	.05/ 6	.06/ 8	.06/10	.06/10	.06/11	.06/11
	17	.10/ 8	.10/ 7	.09/ 7	.09/ 7	.07/ 6	.04/ 6	.00/ 4	.04/ 6	.05/ 8	.05/10	.05/11	.05/11	.05/12
	19	.08/ 8	.08/ 8	.08/ 7	.07/ 7	.06/ 6	.03/ 6	.00/ 4	.03/ 6	.04/ 8	.04/10	.04/11	.04/12	.04/12
	21	.07/ 8	.07/ 8	.06/ 7	.06/ 7	.05/ 6	.03/ 6	.00/ 4	.03/ 6	.03/ 8	.03/10	.04/11	.04/12	.04/12
10	7	.26/ 7	.26/ 7	.27/ 7	.27/ 7	.25/ 6	.17/ 6	.02/ 4	.15/ 6	.11/ 8	.08/10	.06/12	.05/13	.05/13
	9	.28/ 7	.27/ 7	.27/ 7	.25/ 7	.21/ 6	.13/ 6	.01/ 4	.10/ 6	.09/ 8	.08/10	.07/12	.06/13	.06/13
	11	.23/ 8	.23/ 8	.22/ 7	.20/ 7	.16/ 7	.10/ 6	.01/ 4	.08/ 6	.07/ 9	.07/11	.06/12	.06/13	.06/13
	13	.19/ 8	.19/ 8	.18/ 7	.16/ 7	.12/ 7	.07/ 6	.01/ 4	.06/ 6	.06/ 9	.06/11	.05/13	.05/13	.05/13
	15	.15/ 8	.15/ 8	.14/ 7	.12/ 7	.10/ 7	.06/ 6	.01/10	.04/ 6	.05/10	.05/11	.04/13	.04/13	.04/13
	17	.12/ 8	.12/ 8	.11/ 7	.10/ 7	.08/ 7	.04/ 6	.00/10	.04/ 6	.04/10	.04/12	.04/13	.04/13	.04/13
	19	.10/ 8	.10/ 8	.09/ 7	.08/ 7	.06/ 7	.04/ 6	.00/11	.03/ 6	.03/10	.03/12	.03/13	.03/13	.03/13
	21	.08/ 8	.08/ 8	.08/ 7	.07/ 7	.05/ 7	.03/ 6	.00/11	.02/ 6	.03/10	.03/12	.03/13	.03/13	.03/13
15	7	.26/ 8	.26/ 8	.27/ 7	.28/ 7	.26/ 7	.19/ 6	.02/ 4	.12/ 6	.09/10	.05/14	.03/17	.03/20	.03/20
	9	.30/ 8	.30/ 8	.29/ 7	.27/ 7	.23/ 7	.14/ 6	.02/ 4	.09/ 7	.07/10	.05/14	.04/17	.04/20	.03/20
	11	.27/ 8	.26/ 8	.25/ 8	.22/ 7	.18/ 7	.11/ 6	.01/ 4	.07/ 7	.06/10	.05/14	.04/17	.04/20	.04/20
	13	.22/ 8	.21/ 8	.20/ 8	.17/ 7	.14/ 7	.08/ 6	.01/ 4	.05/ 7	.05/10	.04/14	.04/17	.03/20	.03/20
	15	.18/ 8	.17/ 8	.16/ 8	.14/ 7	.11/ 7	.06/ 6	.01/10	.04/ 7	.04/10	.03/14	.03/17	.03/20	.03/20
	17	.14/ 8	.14/ 8	.13/ 8	.11/ 7	.08/ 7	.05/ 6	.01/10	.03/ 7	.03/10	.03/14	.03/17	.03/20	.03/20
	19	.12/ 8	.11/ 8	.11/ 8	.09/ 7	.07/ 7	.04/ 6	.01/11	.03/ 7	.03/10	.02/14	.02/17	.02/20	.02/20
	21	.10/ 8	.10/ 8	.09/ 8	.08/ 7	.06/ 7	.03/ 6	.00/11	.02/ 7	.02/10	.02/14	.02/17	.02/20	.02/20
20	7	.25/ 8	.25/ 8	.27/ 8	.28/ 7	.27/ 7	.21/ 6	.03/ 4	.10/ 7	.06/13	.03/19	.02/26	.02/35	.02/35
	9	.33/ 8	.32/ 8	.32/ 8	.30/ 7	.25/ 7	.16/ 6	.02/ 4	.08/ 7	.06/13	.04/19	.03/23	.02/26	.02/29
	11	.30/ 8	.29/ 8	.28/ 8	.25/ 7	.20/ 7	.12/ 6	.02/ 4	.06/ 7	.05/13	.03/19	.03/23	.02/26	.02/27
	13	.25/ 8	.24/ 8	.22/ 8	.20/ 7	.15/ 7	.09/ 6	.01/ 4	.05/ 7	.04/13	.03/19	.03/23	.02/26	.02/27
	15	.20/ 8	.19/ 8	.18/ 8	.16/ 7	.12/ 7	.07/ 6	.01/ 4	.04/ 7	.03/13	.03/19	.02/23	.02/26	.02/27
	17	.16/ 8	.16/ 8	.15/ 8	.12/ 8	.09/ 7	.05/ 6	.01/11	.03/ 7	.03/13	.02/19	.02/23	.02/26	.02/27
	19	.13/ 8	.13/ 8	.12/ 8	.10/ 8	.08/ 7	.04/ 6	.01/11	.02/ 7	.02/13	.02/19	.02/23	.02/26	.02/27
	21	.11/ 8	.11/ 8	.10/ 8	.08/ 8	.06/ 7	.04/ 6	.01/11	.02/ 7	.02/13	.02/19	.02/23	.01/26	.01/27
25	7	.23/ 8	.24/ 8	.26/ 8	.28/ 8	.29/ 7	.23/ 6	.04/ 4	.09/ 9	.05/17	.02/30	.02/57	.02/ 6	.02/ 6
	9	.34/ 9	.35/ 8	.34/ 8	.32/ 8	.28/ 7	.18/ 6	.03/ 4	.07/ 9	.04/17	.03/24	.02/33	.02/45	.02/48
	11	.33/ 9	.32/ 9	.31/ 8	.27/ 8	.22/ 7	.14/ 6	.02/ 4	.05/ 9	.04/17	.03/24	.02/30	.02/35	.02/37
	13	.27/ 9	.27/ 9	.25/ 8	.22/ 8	.17/ 7	.10/ 6	.02/ 4	.04/ 9	.03/17	.02/24	.02/30	.02/33	.02/33
	15	.22/ 9	.22/ 9	.21/ 8	.17/ 8	.13/ 7	.08/ 6	.01/ 4	.03/ 9	.03/17	.02/24	.02/30	.02/33	.02/33
	17	.18/ 9	.18/ 9	.17/ 8	.14/ 8	.11/ 7	.06/ 6	.01/ 4	.03/ 9	.02/17	.02/24	.02/30	.01/33	.01/33
	19	.15/ 9	.15/ 9	.14/ 8	.11/ 8	.09/ 7	.05/ 6	.01/ 4	.02/ 9	.02/17	.02/24	.01/30	.01/33	.01/33
	21	.12/ 9	.12/ 9	.11/ 8	.09/ 8	.07/ 7	.04/ 6	.01/ 4	.02/ 9	.02/17	.01/24	.01/30	.01/33	.01/33

ASR

LONGCRESTED
RMS PITCH ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES 0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.15/ 7	.15/ 6	.17/ 6	.21/ 6	.25/ 5	.19/ 5	.04/ 5	.21/ 5	.23/ 5	.19/ 6	.16/ 6	.14/ 7	.14/ 7
	9	.13/ 7	.14/ 7	.15/ 7	.17/ 6	.18/ 5	.13/ 5	.03/ 5	.15/ 5	.17/ 6	.15/ 6	.14/ 7	.13/ 7	.13/ 7
	11	.11/ 7	.11/ 7	.12/ 7	.13/ 6	.13/ 6	.09/ 5	.02/ 5	.10/ 5	.12/ 6	.12/ 6	.11/ 7	.10/ 7	.10/ 7
	13	.08/ 7	.09/ 7	.09/ 7	.10/ 6	.10/ 6	.07/ 5	.01/ 5	.08/ 5	.09/ 6	.09/ 6	.08/ 7	.08/ 7	.08/ 7
	15	.07/ 7	.07/ 7	.07/ 7	.07/ 6	.08/ 6	.05/ 5	.01/ 5	.06/ 5	.07/ 6	.07/ 6	.07/ 7	.06/ 7	.06/ 8
	17	.05/ 7	.05/ 7	.06/ 7	.06/ 6	.06/ 6	.04/ 5	.01/ 5	.04/ 5	.06/ 6	.05/ 6	.05/ 7	.05/ 7	.05/ 8
	19	.04/ 7	.04/ 7	.05/ 7	.05/ 6	.05/ 6	.03/ 5	.01/ 5	.04/ 5	.04/ 6	.04/ 6	.04/ 7	.04/ 7	.04/ 8
	21	.04/ 7	.04/ 7	.04/ 7	.04/ 6	.04/ 6	.03/ 5	.01/ 5	.03/ 5	.04/ 6	.04/ 6	.04/ 7	.03/ 7	.03/ 8
5	7	.28/ 7	.27/ 7	.28/ 6	.30/ 6	.29/ 5	.20/ 5	.03/ 4	.19/ 5	.15/ 6	.10/ 7	.08/ 8	.06/ 9	.06/ 9
	9	.24/ 7	.24/ 7	.25/ 7	.24/ 6	.22/ 6	.14/ 5	.02/ 4	.13/ 5	.11/ 6	.09/ 8	.07/ 9	.06/ 9	.06/10
	11	.19/ 7	.19/ 7	.19/ 7	.18/ 6	.16/ 6	.10/ 6	.01/ 4	.09/ 5	.08/ 6	.07/ 8	.06/ 9	.05/10	.05/10
	13	.15/ 7	.15/ 7	.15/ 7	.14/ 6	.12/ 6	.08/ 6	.01/ 4	.07/ 5	.06/ 7	.05/ 8	.05/ 9	.04/10	.04/10
	15	.12/ 7	.12/ 7	.11/ 7	.11/ 6	.09/ 6	.06/ 6	.01/ 4	.05/ 5	.05/ 7	.04/ 8	.04/10	.03/10	.03/10
	17	.09/ 7	.09/ 7	.09/ 7	.09/ 6	.07/ 6	.05/ 6	.01/ 4	.04/ 5	.04/ 7	.03/ 8	.03/10	.03/10	.03/10
	19	.08/ 7	.08/ 7	.07/ 7	.07/ 6	.06/ 6	.04/ 6	.00/ 4	.03/ 5	.03/ 7	.03/ 8	.02/10	.02/10	.02/10
	21	.06/ 7	.06/ 7	.06/ 7	.06/ 6	.05/ 6	.03/ 6	.00/ 4	.03/ 5	.03/ 7	.02/ 8	.02/10	.02/10	.02/10
10	7	.33/ 7	.33/ 7	.34/ 7	.34/ 7	.32/ 6	.22/ 6	.02/ 4	.16/ 5	.09/ 8	.05/10	.03/12	.03/13	.02/13
	9	.33/ 7	.33/ 7	.32/ 7	.30/ 7	.25/ 6	.16/ 6	.02/ 4	.11/ 6	.07/ 8	.05/10	.03/12	.03/13	.03/13
	11	.27/ 7	.26/ 7	.25/ 7	.23/ 7	.19/ 6	.12/ 6	.01/ 4	.08/ 6	.05/ 8	.04/10	.03/12	.03/13	.02/13
	13	.21/ 7	.21/ 7	.20/ 7	.18/ 7	.14/ 6	.09/ 6	.01/ 4	.06/ 6	.04/ 8	.03/10	.02/12	.02/13	.02/13
	15	.16/ 7	.16/ 7	.15/ 7	.14/ 7	.11/ 6	.06/ 6	.01/ 4	.04/ 6	.03/ 8	.02/10	.02/12	.02/13	.02/13
	17	.13/ 7	.13/ 7	.12/ 7	.11/ 7	.09/ 6	.05/ 6	.00/ 4	.03/ 6	.02/ 8	.02/11	.02/12	.02/13	.01/13
	19	.11/ 7	.10/ 7	.10/ 7	.09/ 7	.07/ 6	.04/ 6	.00/ 4	.03/ 6	.02/ 8	.02/11	.01/12	.01/13	.01/13
	21	.09/ 7	.09/ 7	.08/ 7	.07/ 7	.06/ 6	.03/ 6	.00/ 4	.02/ 6	.02/ 8	.01/11	.01/12	.01/13	.01/13
15	7	.36/ 8	.36/ 7	.37/ 7	.38/ 7	.35/ 6	.25/ 6	.03/ 4	.12/ 6	.05/10	.02/14	.01/17	.01/20	.01/20
	9	.39/ 8	.39/ 8	.38/ 7	.35/ 7	.29/ 7	.18/ 6	.02/ 4	.08/ 6	.04/10	.02/14	.01/17	.01/20	.01/20
	11	.33/ 8	.32/ 8	.31/ 7	.28/ 7	.22/ 7	.13/ 6	.02/ 4	.06/ 6	.03/10	.02/14	.01/17	.01/20	.01/20
	13	.26/ 8	.26/ 8	.24/ 7	.21/ 7	.17/ 7	.10/ 6	.01/ 4	.04/ 6	.03/10	.02/14	.01/17	.01/20	.01/20
	15	.21/ 8	.20/ 8	.19/ 7	.16/ 7	.13/ 7	.07/ 6	.01/ 4	.03/ 6	.02/10	.01/14	.01/17	.01/20	.01/20
	17	.17/ 8	.16/ 8	.15/ 7	.13/ 7	.10/ 7	.06/ 6	.01/ 4	.03/ 6	.02/10	.01/14	.01/17	.01/20	.01/20
	19	.13/ 8	.13/ 8	.12/ 7	.11/ 7	.08/ 7	.05/ 6	.01/ 4	.02/ 6	.01/10	.01/14	.01/17	.01/20	.01/20
	21	.11/ 8	.11/ 8	.10/ 7	.09/ 7	.07/ 7	.04/ 6	.00/ 4	.02/ 6	.01/10	.01/14	.01/17	.01/20	.01/20
20	7	.36/ 8	.37/ 8	.38/ 8	.40/ 7	.38/ 7	.28/ 6	.05/ 4	.08/ 7	.03/13	.01/19	.01/26	.01/ 3	.01/ 4
	9	.45/ 8	.44/ 8	.43/ 8	.40/ 7	.33/ 7	.21/ 6	.03/ 4	.06/ 7	.03/13	.01/19	.01/23	.01/26	.01/27
	11	.39/ 8	.38/ 8	.36/ 8	.32/ 7	.26/ 7	.16/ 6	.02/ 4	.04/ 7	.02/13	.01/19	.01/23	.01/26	.01/27
	13	.31/ 8	.31/ 8	.29/ 8	.25/ 7	.19/ 7	.12/ 6	.02/ 4	.03/ 7	.02/13	.01/19	.01/23	.01/26	.01/27
	15	.25/ 8	.24/ 8	.23/ 8	.20/ 7	.15/ 7	.09/ 6	.01/ 4	.03/ 7	.01/13	.01/19	.01/23	.01/26	.01/27
	17	.20/ 8	.20/ 8	.18/ 8	.16/ 7	.12/ 7	.07/ 6	.01/ 4	.02/ 7	.01/13	.01/19	.01/23	.00/26	.00/27
	19	.16/ 8	.16/ 8	.15/ 8	.13/ 7	.10/ 7	.06/ 6	.01/ 4	.02/ 7	.01/13	.01/19	.00/23	.00/26	.00/27
	21	.14/ 8	.13/ 8	.12/ 8	.10/ 7	.08/ 7	.05/ 6	.01/ 4	.01/ 7	.01/13	.01/19	.00/23	.00/26	.00/27
25	7	.36/ 8	.37/ 8	.39/ 8	.42/ 8	.42/ 7	.32/ 6	.06/ 4	.07/ 9	.02/17	.01/ 3	.02/ 4	.02/ 4	.02/ 4
	9	.49/ 8	.50/ 8	.49/ 8	.45/ 8	.38/ 7	.25/ 6	.04/ 4	.05/ 9	.02/17	.01/24	.01/ 4	.01/ 4	.01/ 4
	11	.45/ 9	.45/ 8	.42/ 8	.37/ 8	.30/ 7	.18/ 6	.03/ 4	.04/ 9	.01/17	.01/24	.01/30	.01/ 4	.01/ 4
	13	.37/ 9	.36/ 8	.34/ 8	.29/ 8	.23/ 7	.13/ 6	.02/ 4	.03/ 9	.01/17	.01/24	.01/30	.01/33	.01/33
	15	.29/ 9	.29/ 8	.27/ 8	.23/ 8	.18/ 7	.10/ 6	.01/ 4	.02/ 9	.01/17	.01/24	.01/30	.01/33	.01/33
	17	.24/ 9	.23/ 8	.22/ 8	.18/ 8	.14/ 7	.08/ 6	.01/ 4	.02/ 9	.01/17	.00/24	.00/30	.00/33	.00/33
	19	.19/ 9	.19/ 8	.18/ 8	.15/ 8	.11/ 7	.07/ 6	.01/ 4	.01/ 9	.01/17	.00/24	.00/30	.00/33	.00/33
	21	.16/ 9	.16/ 8	.15/ 8	.12/ 8	.09/ 7	.05/ 6	.01/ 4	.01/ 9	.01/17	.00/24	.00/30	.00/33	.00/33

ASR

LONGCRESTED

RMS YAW IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.02/ 8	.04/ 7	.06/ 7	.07/ 7	.06/ 6	.01/ 6	.06/ 6	.07/ 7	.06/ 7	.04/ 7	.02/ 8	.00/ 8
	9	0.00/**	.03/10	.05/10	.07/ 8	.07/ 8	.05/10	.01/10	.05/ 7	.07/ 8	.06/ 8	.05/ 9	.02/ 9	.00/ 9
	11	0.00/**	.03/10	.05/10	.07/10	.07/10	.05/10	.01/10	.04/ 9	.06/ 9	.06/ 9	.05/10	.03/10	.00/10
	13	0.00/**	.03/10	.05/10	.06/10	.06/10	.04/10	.01/10	.04/ 9	.05/12	.06/12	.04/12	.02/12	.00/12
	15	0.00/**	.02/10	.04/10	.05/10	.05/10	.03/10	.01/10	.03/13	.05/13	.05/13	.04/13	.02/13	.00/12
	17	0.00/**	.02/10	.04/10	.05/10	.04/10	.03/10	.01/10	.03/13	.04/13	.04/13	.04/13	.02/13	.00/13
	19	0.00/**	.02/10	.03/10	.04/10	.04/10	.02/10	.01/10	.02/14	.03/14	.04/14	.03/14	.02/14	.00/14
	21	0.00/**	.02/10	.03/10	.04/10	.03/10	.02/10	.00/10	.02/14	.03/14	.03/14	.03/14	.02/14	.00/14
5	7	0.00/**	.02/ 8	.03/ 7	.05/ 7	.06/ 7	.05/ 6	.01/ 6	.06/ 6	.08/ 7	.07/ 8	.05/ 9	.03/ 9	.00/10
	9	0.00/**	.02/ 9	.04/ 9	.06/ 8	.06/ 8	.05/ 8	.01/10	.05/ 8	.08/ 9	.08/ 9	.06/10	.03/11	.00/11
	11	0.00/**	.02/11	.04/11	.06/11	.06/11	.04/10	.01/10	.05/ 9	.07/ 9	.08/12	.06/12	.03/12	.00/11
	13	0.00/**	.02/13	.04/12	.05/12	.05/11	.04/10	.01/10	.04/12	.08/12	.07/12	.06/12	.03/12	.00/12
	15	0.00/**	.02/13	.04/12	.05/12	.05/12	.03/11	.01/10	.03/13	.05/13	.06/13	.05/13	.03/13	.00/13
	17	0.00/**	.02/13	.03/13	.04/12	.04/12	.03/11	.01/10	.03/13	.04/13	.05/13	.04/13	.02/13	.00/13
	19	0.00/**	.01/13	.03/13	.03/12	.03/12	.02/11	.00/10	.02/13	.04/13	.04/14	.04/13	.02/13	.00/13
	21	0.00/**	.01/13	.02/13	.03/12	.03/12	.02/11	.00/10	.02/14	.03/13	.04/14	.03/14	.02/14	.00/14
10	7	0.00/**	.01/ 8	.03/ 7	.04/ 7	.05/ 7	.05/ 6	.01/ 8	.07/ 7	.10/ 8	.09/10	.08/12	.04/13	.00/13
	9	0.00/**	.02/ 9	.03/ 9	.05/ 8	.05/ 8	.04/ 8	.01/10	.06/ 8	.09/ 9	.10/11	.09/12	.05/13	.00/13
	11	0.00/**	.02/10	.03/10	.05/10	.05/10	.04/10	.01/10	.05/ 9	.08/12	.09/12	.08/12	.04/13	.00/13
	13	0.00/**	.02/13	.03/13	.04/13	.04/12	.03/11	.01/10	.04/12	.07/12	.08/12	.07/13	.04/13	.00/13
	15	0.00/**	.02/13	.03/13	.04/13	.04/13	.03/11	.01/10	.03/13	.06/13	.06/13	.06/13	.03/13	.00/13
	17	0.00/**	.01/14	.03/13	.03/13	.03/13	.02/11	.01/10	.03/13	.05/13	.05/13	.05/13	.03/13	.00/13
	19	0.00/**	.01/14	.02/13	.03/13	.03/13	.02/11	.00/10	.02/13	.04/13	.05/13	.04/13	.02/13	.00/13
	21	0.00/**	.01/14	.02/13	.02/13	.02/13	.02/11	.00/10	.02/14	.03/13	.04/13	.03/13	.02/13	.00/13
15	7	0.00/**	.01/ 8	.02/ 8	.04/ 7	.05/ 7	.05/ 6	.01/ 8	.07/ 7	.11/10	.14/14	.12/17	.07/20	.00/**
	9	0.00/**	.01/ 9	.03/ 9	.04/ 8	.05/ 8	.04/ 8	.01/ 9	.06/ 8	.10/10	.13/14	.10/17	.06/20	.00/**
	11	0.00/**	.01/10	.03/10	.04/10	.04/10	.03/10	.01/10	.05/ 9	.09/10	.10/14	.08/17	.05/20	.00/**
	13	0.00/**	.01/14	.03/12	.03/12	.04/11	.03/11	.01/14	.04/12	.07/10	.08/14	.06/17	.04/20	.00/20
	15	0.00/**	.01/14	.02/14	.03/13	.03/13	.02/11	.01/14	.03/13	.06/10	.07/14	.05/17	.03/20	.00/20
	17	0.00/**	.01/14	.02/14	.03/13	.03/13	.02/11	.01/14	.03/13	.05/12	.05/14	.04/17	.02/20	.00/20
	19	0.00/**	.01/14	.02/14	.02/14	.02/13	.02/11	.00/14	.02/14	.04/12	.04/14	.03/17	.02/20	.00/20
	21	0.00/**	.01/14	.02/14	.02/14	.02/13	.01/11	.00/14	.02/14	.03/12	.04/14	.03/17	.02/20	.00/20
20	7	0.00/**	.01/ 8	.02/ 8	.03/ 7	.04/ 7	.04/ 6	.01/ 8	.06/ 8	.14/13	.11/**	.13/70	.09/63	.00/**
	9	0.00/**	.01/ 9	.02/ 9	.03/ 8	.04/ 8	.04/ 7	.01/ 8	.05/ 8	.11/13	.09/19	.10/70	.08/63	.00/**
	11	0.00/**	.01/10	.02/10	.03/10	.04/10	.03/ 9	.01/ 9	.04/ 9	.09/13	.06/19	.07/70	.06/63	.00/**
	13	0.00/**	.01/11	.02/11	.03/11	.03/10	.02/10	.01/14	.03/13	.07/13	.05/19	.05/70	.04/63	.00/**
	15	0.00/**	.01/13	.02/14	.02/13	.03/12	.02/10	.01/14	.03/13	.05/13	.04/19	.04/70	.03/63	.00/**
	17	0.00/**	.01/14	.02/14	.02/14	.02/13	.02/11	.01/14	.02/13	.04/13	.03/19	.03/70	.03/63	.00/**
	19	0.00/**	.01/16	.01/14	.02/14	.02/13	.01/11	.00/14	.02/13	.03/13	.02/19	.03/70	.02/63	.00/**
	21	0.00/**	.01/16	.01/14	.01/14	.01/13	.01/11	.00/14	.02/13	.03/13	.02/19	.02/70	.02/63	.00/**
25	7	0.00/**	.01/ 8	.02/ 7	.03/ 7	.04/ 7	.04/ 7	.01/ 8	.06/ 9	.08/17	.18/39	.14/**	.08/ 8	.00/**
	9	0.00/**	.01/ 9	.02/ 9	.03/ 8	.04/ 8	.03/ 7	.01/ 8	.05/ 9	.06/17	.15/39	.16/45	.11/57	.00/**
	11	0.00/**	.01/10	.02/10	.03/10	.03/ 9	.03/10	.01/13	.04/ 9	.04/17	.12/39	.14/45	.10/57	.00/**
	13	0.00/**	.01/10	.02/10	.02/11	.03/10	.02/10	.01/14	.03/ 9	.03/17	.09/39	.11/45	.08/57	.00/**
	15	0.00/**	.01/13	.02/13	.02/12	.02/11	.02/10	.01/14	.02/ 9	.02/17	.07/39	.09/45	.07/57	.00/**
	17	0.00/**	.01/16	.01/13	.02/13	.02/12	.01/10	.01/14	.02/ 9	.02/17	.05/39	.07/45	.05/57	.00/**
	19	0.00/**	.01/16	.01/14	.01/13	.01/12	.01/10	.01/14	.02/ 9	.02/17	.04/39	.06/45	.05/57	.00/**
	21	0.00/**	.01/16	.01/14	.01/14	.01/12	.01/10	.00/14	.01/ 9	.01/17	.04/39	.05/45	.04/57	.00/**

ASR

LONGCRESTED

RMS YAW VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.02/ 7	.04/ 7	.06/ 7	.07/ 6	.07/ 5	.01/ 5	.07/ 6	.07/ 6	.05/ 7	.03/ 7	.02/ 7	.00/ 7
	9	0.00/**	.02/ 8	.04/ 8	.06/ 8	.06/ 7	.05/ 6	.01/10	.05/ 6	.06/ 7	.05/ 8	.04/ 8	.02/ 8	.00/ 8
	11	0.00/**	.02/10	.04/10	.05/10	.05/10	.04/10	.01/10	.04/ 7	.05/ 8	.05/ 8	.03/ 9	.02/ 9	.00/ 9
	13	0.00/**	.02/10	.03/10	.04/10	.04/10	.03/10	.01/10	.03/ 7	.04/ 8	.04/ 9	.03/ 9	.02/ 9	.00/10
	15	0.00/**	.01/10	.03/10	.03/10	.04/10	.03/10	.01/10	.02/ 8	.03/ 9	.03/ 9	.02/12	.01/12	.00/12
	17	0.00/**	.01/10	.02/10	.03/10	.03/10	.02/10	.00/10	.02/ 8	.03/ 9	.03/12	.02/12	.01/12	.00/12
	19	0.00/**	.01/10	.02/10	.02/10	.02/10	.02/10	.00/10	.02/ 9	.02/ 9	.02/12	.02/12	.01/12	.00/12
	21	0.00/**	.01/10	.02/10	.02/10	.02/10	.01/10	.00/10	.01/ 9	.02/ 9	.02/13	.01/12	.01/12	.00/12
8	7	0.00/**	.02/ 7	.03/ 7	.05/ 7	.07/ 6	.07/ 6	.01/ 5	.07/ 6	.07/ 7	.06/ 8	.04/ 9	.02/ 9	.00/10
	9	0.00/**	.02/ 8	.04/ 8	.05/ 7	.06/ 7	.05/ 6	.01/10	.05/ 6	.06/ 8	.06/ 9	.04/ 9	.02/10	.00/11
	11	0.00/**	.02/10	.03/ 9	.05/ 8	.05/ 8	.04/10	.01/10	.04/ 7	.05/ 8	.05/ 9	.04/11	.02/11	.00/11
	13	0.00/**	.02/11	.03/11	.04/11	.04/11	.03/10	.01/10	.03/ 7	.04/ 9	.04/12	.03/12	.02/12	.00/11
	15	0.00/**	.01/13	.02/12	.03/11	.03/11	.02/10	.01/10	.02/ 9	.03/ 9	.03/12	.03/12	.01/12	.00/11
	17	0.00/**	.01/13	.02/12	.03/12	.03/11	.02/10	.00/10	.02/ 9	.03/12	.03/12	.02/12	.01/12	.00/12
	19	0.00/**	.01/13	.02/12	.02/12	.02/11	.02/10	.00/10	.02/ 9	.02/12	.02/12	.02/12	.01/12	.00/12
	21	0.00/**	.01/13	.01/12	.02/12	.02/11	.01/10	.00/10	.01/12	.02/12	.02/12	.02/12	.01/12	.00/12
10	7	0.00/**	.02/ 7	.03/ 7	.05/ 7	.07/ 6	.06/ 6	.01/ 5	.06/ 6	.07/ 8	.05/10	.04/12	.02/13	.00/13
	9	0.00/**	.02/ 8	.03/ 8	.05/ 7	.06/ 7	.05/ 6	.01/10	.05/ 7	.06/ 9	.06/11	.05/12	.02/13	.00/13
	11	0.00/**	.02/ 9	.03/ 8	.04/ 8	.05/ 7	.04/ 7	.01/10	.04/ 7	.05/ 9	.05/11	.04/12	.02/13	.00/13
	13	0.00/**	.01/10	.03/10	.04/10	.04/ 9	.03/11	.01/10	.03/ 8	.04/ 9	.04/12	.03/12	.02/13	.00/13
	15	0.00/**	.01/13	.02/13	.03/13	.03/11	.02/11	.00/10	.02/ 8	.03/12	.03/12	.03/12	.01/13	.00/13
	17	0.00/**	.01/13	.02/13	.02/13	.03/12	.02/11	.00/10	.02/ 8	.03/12	.03/12	.02/12	.01/13	.00/13
	19	0.00/**	.01/13	.02/13	.02/13	.02/12	.02/11	.00/10	.01/13	.02/12	.02/12	.02/12	.01/13	.00/13
	21	0.00/**	.01/13	.01/13	.02/13	.02/12	.01/11	.00/10	.01/13	.02/12	.02/12	.01/12	.01/13	.00/13
15	7	0.00/**	.01/ 7	.03/ 7	.05/ 7	.07/ 7	.06/ 6	.01/ 5	.06/ 7	.07/10	.06/14	.03/17	.01/20	.00/22
	9	0.00/**	.02/ 8	.03/ 8	.05/ 7	.06/ 7	.05/ 6	.01/ 8	.04/ 7	.06/10	.05/14	.03/17	.01/20	.00/20
	11	0.00/**	.02/ 9	.03/ 8	.04/ 8	.05/ 7	.04/ 6	.01/ 9	.03/ 7	.05/10	.04/14	.03/17	.01/20	.00/20
	13	0.00/**	.01/10	.02/ 9	.03/ 9	.04/ 8	.03/ 7	.01/10	.03/ 8	.04/10	.03/14	.02/17	.01/20	.00/20
	15	0.00/**	.01/10	.02/10	.03/10	.03/10	.02/ 9	.00/10	.02/ 8	.03/10	.03/14	.02/17	.01/20	.00/20
	17	0.00/**	.01/14	.02/12	.02/11	.02/10	.02/10	.00/14	.02/ 8	.02/10	.02/14	.01/17	.01/20	.00/20
	19	0.00/**	.01/14	.01/14	.02/13	.02/11	.01/10	.00/14	.01/13	.02/10	.02/14	.01/17	.01/20	.00/20
	21	0.00/**	.01/14	.01/14	.02/13	.02/11	.01/11	.00/14	.01/13	.02/10	.01/14	.01/17	.00/20	.00/20
20	7	0.00/**	.01/ 7	.03/ 7	.05/ 7	.06/ 6	.06/ 6	.01/ 5	.05/ 7	.06/13	.02/20	.01/48	.01/57	.00/**
	9	0.00/**	.02/ 8	.03/ 8	.05/ 8	.05/ 7	.05/ 6	.01/ 8	.04/ 7	.05/13	.02/19	.01/48	.01/52	.00/**
	11	0.00/**	.01/ 9	.03/ 8	.04/ 8	.04/ 7	.03/ 6	.01/ 8	.03/ 8	.04/13	.01/19	.01/48	.01/52	.00/**
	13	0.00/**	.01/ 9	.02/ 9	.03/ 8	.03/ 8	.03/ 7	.00/ 9	.02/ 8	.03/13	.01/19	.01/23	.00/52	.00/**
	15	0.00/**	.01/10	.02/10	.03/ 9	.03/ 8	.02/ 7	.00/14	.02/ 8	.02/13	.01/19	.00/23	.00/52	.00/**
	17	0.00/**	.01/10	.02/10	.02/ 9	.02/ 8	.02/ 9	.00/14	.01/ 8	.02/13	.01/19	.00/23	.00/52	.00/**
	19	0.00/**	.01/10	.01/10	.02/10	.02/ 8	.01/ 9	.00/14	.01/ 8	.02/13	.01/19	.00/23	.00/52	.00/**
	21	0.00/**	.01/10	.01/10	.01/11	.01/10	.01/ 9	.00/14	.01/ 8	.01/13	.00/19	.00/23	.00/52	.00/**
25	7	0.00/**	.01/ 7	.03/ 7	.04/ 7	.06/ 6	.06/ 6	.01/ 5	.04/ 9	.02/17	.02/39	.01/45	.01/ 7	.00/**
	9	0.00/**	.01/ 8	.03/ 8	.04/ 8	.05/ 7	.04/ 7	.01/ 8	.03/ 9	.01/17	.02/37	.02/45	.01/57	.00/**
	11	0.00/**	.01/ 9	.03/ 9	.04/ 8	.04/ 8	.03/ 7	.01/ 8	.02/ 9	.01/17	.02/37	.02/45	.01/52	.00/**
	13	0.00/**	.01/10	.02/ 9	.03/ 8	.03/ 8	.02/ 7	.01/13	.02/ 9	.01/17	.01/24	.01/42	.01/52	.00/**
	15	0.00/**	.01/10	.02/ 9	.02/ 8	.02/ 8	.02/ 7	.00/14	.01/ 9	.01/17	.01/24	.01/30	.01/33	.00/33
	17	0.00/**	.01/10	.01/10	.02/ 9	.02/ 8	.01/ 7	.00/14	.01/ 9	.00/17	.01/24	.01/30	.01/33	.00/33
	19	0.00/**	.01/10	.01/10	.02/ 9	.02/ 8	.01/ 7	.00/14	.01/ 9	.00/17	.01/24	.01/30	.01/33	.00/33
	21	0.00/**	.01/10	.01/10	.01/ 9	.01/ 8	.01/ 7	.00/14	.01/ 9	.00/17	.01/24	.01/30	.00/33	.00/33

ASR

LONGCRESTED

RMS YAW ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.02/ 7	.03/ 7	.05/ 6	.08/ 6	.08/ 5	.02/ 4	.08/ 5	.07/ 6	.05/ 7	.03/ 7	.01/ 7	.00/ 7
	9	0.00/**	.02/ 8	.03/ 7	.05/ 7	.06/ 6	.06/ 5	.01/ 5	.06/ 5	.06/ 6	.05/ 7	.03/ 7	.02/ 8	.00/ 8
	11	0.00/**	.01/10	.03/ 8	.04/ 7	.05/ 6	.04/ 5	.01/10	.04/ 5	.04/ 7	.04/ 7	.03/ 8	.01/ 8	.00/ 8
	13	0.00/**	.01/10	.02/10	.03/10	.04/ 7	.03/ 5	.01/10	.03/ 6	.03/ 7	.03/ 8	.02/ 8	.01/ 8	.00/ 9
	15	0.00/**	.01/10	.02/10	.03/10	.03/ 7	.02/ 5	.01/10	.02/ 6	.03/ 7	.02/ 8	.02/ 8	.01/ 9	.00/ 9
	17	0.00/**	.01/10	.01/10	.02/10	.02/10	.02/ 5	.00/10	.02/ 6	.02/ 7	.02/ 8	.01/ 8	.01/ 9	.00/ 9
	19	0.00/**	.01/10	.01/10	.02/10	.02/10	.02/ 5	.00/10	.01/ 6	.02/ 7	.02/ 8	.01/ 9	.01/ 9	.00/ 9
	21	0.00/**	.01/10	.01/10	.01/10	.02/10	.01/10	.00/10	.01/ 6	.01/ 7	.01/ 8	.01/ 9	.01/ 9	.00/ 9
5	7	0.00/**	.02/ 7	.04/ 7	.06/ 8	.09/ 6	.09/ 5	.02/ 4	.07/ 6	.06/ 7	.04/ 8	.03/ 9	.01/ 9	.00/ 9
	9	0.00/**	.02/ 8	.04/ 7	.05/ 7	.07/ 6	.06/ 5	.01/ 5	.05/ 6	.05/ 7	.04/ 8	.03/ 9	.01/10	.00/10
	11	0.00/**	.02/ 8	.03/ 8	.04/ 7	.05/ 6	.05/ 5	.01/10	.04/ 6	.04/ 7	.03/ 9	.02/ 9	.01/10	.00/11
	13	0.00/**	.01/ 8	.02/ 8	.03/ 7	.04/ 7	.03/ 5	.01/10	.03/ 6	.03/ 8	.03/ 9	.02/10	.01/11	.00/11
	15	0.00/**	.01/ 8	.02/ 8	.03/ 7	.03/ 7	.03/ 5	.00/10	.02/ 6	.02/ 8	.02/ 9	.01/11	.01/12	.00/11
	17	0.00/**	.01/10	.02/ 8	.02/ 7	.02/ 7	.02/ 6	.00/10	.02/ 6	.02/ 8	.02/ 9	.01/12	.01/12	.00/11
	19	0.00/**	.01/10	.01/11	.02/11	.02/ 7	.02/ 6	.00/10	.01/ 6	.02/ 8	.01/ 9	.01/12	.01/12	.00/11
	21	0.00/**	.01/10	.01/11	.02/11	.02/ 7	.01/ 6	.00/10	.01/ 6	.01/ 8	.01/ 9	.01/12	.00/12	.00/11
10	7	0.00/**	.02/ 7	.04/ 7	.07/ 7	.10/ 6	.09/ 5	.02/ 5	.06/ 6	.05/ 8	.03/10	.02/12	.01/13	.00/13
	9	0.00/**	.02/ 8	.04/ 7	.06/ 7	.07/ 6	.07/ 6	.01/ 5	.05/ 6	.04/ 8	.03/11	.02/12	.01/13	.00/13
	11	0.00/**	.02/ 8	.03/ 8	.05/ 7	.06/ 6	.05/ 6	.01/10	.03/ 6	.03/ 8	.03/11	.02/12	.01/13	.00/13
	13	0.00/**	.01/ 8	.03/ 8	.04/ 7	.04/ 6	.04/ 6	.01/10	.02/ 6	.03/ 9	.02/11	.02/12	.01/13	.00/13
	15	0.00/**	.01/ 8	.02/ 8	.03/ 7	.03/ 7	.03/ 6	.00/10	.02/ 6	.02/ 9	.02/11	.01/12	.01/13	.00/13
	17	0.00/**	.01/ 8	.02/ 8	.02/ 7	.03/ 7	.02/ 6	.00/10	.01/ 6	.02/ 9	.01/11	.01/12	.00/13	.00/13
	19	0.00/**	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.02/ 6	.00/10	.01/ 6	.01/ 9	.01/11	.01/12	.00/13	.00/13
	21	0.00/**	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.01/ 6	.00/10	.01/ 6	.01/ 9	.01/11	.01/12	.00/13	.00/13
15	7	0.00/**	.02/ 7	.05/ 7	.08/ 6	.10/ 6	.10/ 5	.02/ 5	.05/ 7	.04/10	.03/14	.01/17	.00/20	.00/21
	9	0.00/**	.02/ 8	.04/ 7	.07/ 7	.08/ 7	.07/ 5	.01/ 5	.04/ 7	.03/10	.02/14	.01/17	.00/20	.00/20
	11	0.00/**	.02/ 8	.04/ 8	.05/ 7	.06/ 7	.05/ 6	.01/ 5	.03/ 7	.03/10	.02/14	.01/17	.00/20	.00/20
	13	0.00/**	.01/ 8	.03/ 8	.04/ 7	.04/ 7	.04/ 6	.01/ 9	.02/ 7	.02/10	.01/14	.01/17	.00/20	.00/20
	15	0.00/**	.01/ 8	.02/ 8	.03/ 7	.03/ 7	.03/ 6	.00/ 9	.02/ 7	.02/10	.01/14	.01/17	.00/20	.00/20
	17	0.00/**	.01/ 8	.02/ 8	.02/ 7	.03/ 7	.02/ 6	.00/ 9	.01/ 7	.01/10	.01/14	.00/17	.00/20	.00/20
	19	0.00/**	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.02/ 6	.00/10	.01/ 7	.01/10	.01/14	.00/17	.00/20	.00/20
	21	0.00/**	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.01/ 6	.00/10	.01/ 7	.01/10	.01/14	.00/17	.00/20	.00/20
20	7	0.00/**	.02/ 7	.05/ 7	.08/ 6	.10/ 6	.10/ 5	.02/ 5	.04/ 7	.03/13	.01/19	.00/45	.00/ 4	.00/ 4
	9	0.00/**	.02/ 7	.05/ 7	.07/ 7	.08/ 6	.07/ 5	.01/ 5	.03/ 7	.02/13	.01/19	.00/23	.00/42	.00/48
	11	0.00/**	.02/ 8	.04/ 8	.05/ 8	.06/ 7	.05/ 5	.01/ 5	.02/ 7	.02/13	.00/19	.00/23	.00/42	.00/39
	13	0.00/**	.02/ 8	.03/ 8	.04/ 8	.05/ 7	.04/ 6	.01/ 8	.02/ 7	.01/13	.00/19	.00/23	.00/26	.00/27
	15	0.00/**	.01/ 8	.02/ 8	.03/ 8	.04/ 7	.03/ 6	.00/ 8	.01/ 7	.01/13	.00/19	.00/23	.00/26	.00/27
	17	0.00/**	.01/ 8	.02/ 8	.03/ 8	.03/ 7	.02/ 6	.00/ 8	.01/ 7	.01/13	.00/19	.00/23	.00/26	.00/27
	19	0.00/**	.01/ 8	.02/ 8	.02/ 8	.02/ 7	.02/ 6	.00/14	.01/ 7	.01/13	.00/19	.00/23	.00/26	.00/27
	21	0.00/**	.01/ 9	.01/ 8	.02/ 8	.02/ 7	.01/ 6	.00/14	.01/ 7	.01/13	.00/19	.00/23	.00/26	.00/27
25	7	0.00/**	.03/ 7	.05/ 7	.08/ 6	.11/ 6	.10/ 5	.02/ 5	.03/ 9	.00/17	.01/37	.01/ 4	.00/ 4	.00/ 4
	9	0.00/**	.02/ 7	.05/ 7	.07/ 7	.08/ 6	.07/ 5	.01/ 5	.02/ 9	.00/17	.00/31	.00/42	.00/52	.00/63
	11	0.00/**	.02/ 8	.04/ 7	.05/ 7	.06/ 6	.05/ 5	.01/ 5	.02/ 9	.00/17	.00/24	.00/37	.00/45	.00/42
	13	0.00/**	.02/ 8	.03/ 7	.04/ 7	.05/ 6	.04/ 5	.01/ 8	.01/ 9	.00/17	.00/24	.00/30	.00/33	.00/33
	15	0.00/**	.01/ 9	.02/ 8	.03/ 7	.04/ 6	.03/ 5	.00/ 8	.01/ 9	.00/17	.00/24	.00/30	.00/33	.00/33
	17	0.00/**	.01/ 9	.02/ 9	.03/ 8	.03/ 6	.02/ 5	.00/14	.01/ 9	.00/17	.00/24	.00/30	.00/33	.00/33
	19	0.00/**	.01/ 9	.02/ 9	.02/ 8	.02/ 6	.02/ 5	.00/14	.01/ 9	.00/17	.00/24	.00/30	.00/33	.00/33
	21	0.00/**	.01/ 9	.01/ 9	.02/ 8	.02/ 6	.01/ 5	.00/14	.00/ 9	.00/17	.00/24	.00/30	.00/33	.00/33

ASR

LONGCRESTED

RMS LON DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.03/ 5	.00/ 5	.03/ 8	.04/ 8	.05/ 8	.02/ 6	.05/ 8	.05/ 8
	9	.09/10	.08/10	.08/10	.07/10	.05/10	.03/10	.00/10	.04/10	.06/10	.07/10	.02/10	.07/ 9	.09/10
	11	.11/12	.11/12	.10/12	.09/12	.06/12	.03/12	.01/12	.04/11	.07/12	.09/12	.03/13	.09/11	.12/12
	13	.13/14	.13/14	.12/14	.10/14	.07/14	.04/14	.01/14	.05/14	.08/14	.11/14	.03/14	.10/14	.14/14
	15	.15/16	.15/16	.13/16	.11/16	.08/16	.04/16	.01/16	.05/16	.09/16	.12/16	.03/16	.10/16	.16/16
	17	.16/18	.15/18	.14/18	.11/18	.08/18	.04/18	.01/18	.05/18	.09/18	.12/18	.04/18	.11/18	.17/18
	19	.17/18	.16/18	.15/18	.12/18	.08/18	.04/18	.01/18	.05/18	.09/18	.13/18	.04/21	.11/18	.18/18
	21	.17/21	.17/21	.18/21	.12/21	.09/21	.04/21	.01/21	.05/21	.10/21	.13/21	.04/21	.11/21	.18/21
5	7	.04/ 7	.04/ 7	.04/ 7	.05/ 6	.04/ 6	.03/ 5	.00/ 7	.04/ 8	.02/ 6	.06/ 8	.08/10	.08/10	.08/10
	9	.06/10	.06/10	.06/10	.06/10	.05/10	.03/10	.00/10	.04/10	.02/10	.08/10	.12/11	.13/12	.14/12
	11	.08/13	.08/13	.08/13	.07/12	.06/12	.03/12	.01/11	.04/12	.02/13	.09/13	.15/13	.17/13	.17/13
	13	.10/14	.10/14	.09/14	.08/14	.06/14	.03/14	.01/14	.05/14	.03/15	.09/14	.16/14	.19/15	.20/15
	15	.12/16	.11/16	.11/16	.09/16	.07/16	.04/16	.01/16	.05/16	.03/17	.10/17	.17/17	.20/17	.21/17
	17	.13/18	.12/18	.11/18	.10/18	.07/18	.04/18	.01/18	.05/18	.03/18	.10/19	.17/19	.21/20	.22/20
	19	.14/21	.13/21	.12/21	.10/21	.07/21	.04/18	.01/18	.05/18	.03/19	.10/20	.18/20	.21/20	.22/20
	21	.14/21	.14/21	.13/21	.11/21	.08/21	.04/21	.01/21	.06/22	.03/22	.11/22	.18/22	.22/22	.23/22
10	7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 6	.03/ 6	.00/ 6	.04/ 8	.07/10	.11/11	.15/12	.17/13	.19/13
	9	.05/10	.05/10	.05/10	.05/10	.04/10	.03/10	.00/10	.04/10	.09/11	.15/12	.20/13	.24/13	.25/13
	11	.07/13	.07/13	.06/13	.06/13	.05/13	.03/12	.01/11	.05/12	.11/13	.17/14	.23/14	.27/15	.28/15
	13	.08/14	.08/14	.08/14	.07/14	.05/14	.03/14	.01/14	.05/14	.11/15	.18/15	.24/16	.28/16	.29/16
	15	.09/16	.09/16	.09/16	.08/16	.06/16	.03/16	.01/16	.05/17	.12/16	.18/17	.24/17	.28/18	.30/18
	17	.11/18	.10/18	.10/18	.08/18	.06/18	.04/18	.01/18	.06/18	.12/18	.18/18	.24/19	.28/20	.29/20
	19	.11/21	.11/21	.10/21	.09/21	.07/21	.04/21	.01/18	.06/19	.12/20	.18/21	.24/22	.28/22	.29/22
	21	.12/21	.12/21	.11/21	.10/21	.07/21	.04/21	.01/21	.06/22	.12/22	.18/23	.24/24	.27/24	.29/24
15	7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 6	.03/ 6	.01/ 6	.04/ 9	.11/10	.25/14	.40/17	.49/20	.57/20
	9	.05/ 8	.05/ 8	.05/ 7	.05/ 7	.04/ 7	.03/ 6	.01/ 9	.05/10	.13/12	.26/14	.41/17	.51/20	.58/20
	11	.06/13	.06/13	.06/13	.05/13	.04/13	.03/12	.01/11	.05/13	.14/14	.26/14	.40/17	.50/20	.55/20
	13	.07/14	.07/14	.06/14	.06/14	.05/14	.03/14	.01/13	.06/14	.14/16	.25/14	.38/17	.47/20	.52/20
	15	.08/16	.08/16	.07/16	.07/16	.05/16	.03/16	.01/16	.06/17	.14/17	.24/18	.35/17	.44/20	.48/20
	17	.09/18	.09/18	.08/18	.07/18	.06/18	.03/18	.01/18	.06/19	.14/18	.23/20	.33/17	.41/20	.45/20
	19	.10/21	.10/21	.09/21	.08/21	.06/21	.04/21	.01/18	.06/20	.13/21	.22/22	.32/17	.39/20	.42/20
	21	.11/21	.10/21	.10/21	.09/21	.07/21	.04/21	.01/21	.06/22	.13/23	.22/25	.30/24	.37/20	.40/20
20	7	.04/ 8	.04/ 8	.04/ 8	.04/ 7	.04/ 7	.03/ 6	.01/ 6	.05/ 9	.21/13	.48/19	.51/29	.54/42	.57/57
	9	.05/ 8	.05/ 8	.05/ 8	.05/ 7	.04/ 7	.03/ 6	.01/10	.06/11	.20/13	.46/19	.56/23	.62/26	.68/27
	11	.05/ 8	.05/ 8	.05/ 8	.05/13	.04/13	.03/13	.01/10	.06/13	.19/13	.42/19	.56/23	.64/26	.71/27
	13	.06/14	.06/14	.06/14	.05/14	.04/14	.03/14	.01/13	.06/15	.18/13	.38/19	.53/23	.63/26	.70/27
	15	.07/16	.07/16	.06/16	.06/16	.05/16	.03/16	.01/16	.06/16	.17/13	.35/19	.50/23	.60/26	.66/27
	17	.08/18	.07/18	.07/18	.07/18	.05/18	.03/18	.01/18	.06/18	.16/20	.32/19	.46/23	.56/26	.61/27
	19	.08/21	.08/21	.08/21	.07/21	.06/21	.03/21	.01/18	.06/20	.16/22	.30/19	.43/23	.52/26	.57/27
	21	.09/21	.09/21	.09/21	.08/21	.06/21	.04/21	.01/21	.07/22	.15/24	.28/19	.40/23	.49/26	.53/27
25	7	.03/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 7	.03/ 6	.01/ 6	.06/ 9	.44/17	.56/30	.55/90	.54/ 7	.57/ 7
	9	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.04/ 7	.03/ 6	.01/10	.07/11	.36/17	.61/24	.66/33	.70/45	.76/63
	11	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.04/ 7	.02/13	.01/10	.07/13	.30/17	.58/24	.70/30	.76/33	.83/37
	13	.05/16	.05/16	.05/14	.05/14	.04/14	.03/14	.01/13	.07/15	.26/17	.53/24	.69/30	.78/33	.85/33
	15	.06/18	.06/16	.06/16	.05/16	.04/16	.03/16	.01/14	.07/17	.23/17	.47/24	.65/30	.76/33	.83/33
	17	.07/18	.07/18	.06/18	.06/18	.05/18	.03/18	.01/16	.07/18	.21/17	.43/24	.61/30	.72/33	.79/33
	19	.07/21	.07/21	.07/21	.06/21	.05/21	.03/21	.01/18	.07/20	.20/17	.39/24	.56/30	.68/33	.74/33
	21	.08/21	.08/21	.08/21	.07/21	.06/21	.03/21	.01/21	.07/23	.19/17	.36/24	.52/30	.63/33	.69/33

ASR

LONGCRESTED

RMS LON VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.05/ 5	.04/ 5	.01/ 4	.04/ 5	.04/ 5	.04/ 8	.02/ 6	.04/ 8	.04/ 8
	9	.06/10	.06/10	.06/10	.05/ 9	.04/ 9	.03/ 5	.00/ 4	.03/ 9	.05/ 9	.05/ 9	.02/ 6	.05/ 8	.06/10
	11	.07/11	.07/11	.06/10	.05/10	.04/10	.02/10	.00/10	.03/10	.05/10	.06/10	.02/11	.06/10	.07/11
	13	.07/13	.07/13	.06/13	.05/13	.04/13	.02/13	.00/13	.03/13	.04/13	.06/13	.02/13	.05/13	.07/13
	15	.07/14	.07/14	.06/14	.05/14	.04/14	.02/14	.00/14	.02/14	.04/14	.06/14	.02/14	.05/14	.07/14
	17	.07/16	.07/16	.06/16	.05/16	.04/16	.02/16	.00/16	.02/16	.04/16	.05/16	.02/16	.05/16	.07/16
	19	.07/18	.06/18	.06/18	.05/18	.03/18	.02/18	.00/16	.02/18	.04/18	.05/18	.02/18	.05/18	.07/18
	21	.06/18	.06/18	.06/18	.05/18	.03/18	.02/18	.00/18	.02/18	.04/18	.05/18	.01/18	.04/18	.07/18
5	7	.04/ 7	.05/ 7	.05/ 6	.05/ 6	.05/ 6	.04/ 5	.00/ 4	.04/ 5	.02/ 6	.04/ 8	.05/10	.05/10	.05/10
	9	.05/10	.05/10	.05/10	.05/10	.04/ 6	.03/ 5	.00/ 9	.03/ 9	.02/ 6	.05/10	.07/11	.08/11	.08/11
	11	.06/11	.06/11	.06/11	.05/11	.04/10	.02/10	.00/10	.03/11	.01/12	.05/12	.08/12	.09/13	.09/13
	13	.06/13	.06/13	.06/13	.05/13	.04/13	.02/13	.00/13	.03/13	.01/13	.05/13	.08/13	.09/14	.09/14
	15	.06/14	.06/14	.06/14	.05/14	.04/14	.02/14	.00/14	.03/14	.01/15	.05/15	.07/15	.09/16	.09/16
	17	.06/16	.06/16	.05/16	.05/16	.03/16	.02/16	.00/16	.02/16	.01/17	.04/17	.07/17	.08/17	.08/17
	19	.06/18	.06/18	.05/18	.04/18	.03/18	.02/18	.00/18	.02/18	.01/18	.04/19	.07/19	.08/18	.08/18
	21	.06/21	.05/21	.05/18	.04/18	.03/18	.02/18	.00/18	.02/18	.01/19	.04/19	.06/20	.07/20	.08/20
10	7	.05/ 7	.05/ 7	.06/ 7	.06/ 6	.05/ 6	.04/ 5	.00/ 6	.03/ 8	.05/ 9	.07/10	.08/12	.08/13	.08/13
	9	.06/ 7	.06/ 7	.06/ 7	.05/ 7	.05/ 6	.03/ 5	.00/ 8	.03/10	.06/10	.08/12	.10/13	.11/13	.11/13
	11	.06/12	.06/12	.05/12	.05/11	.04/11	.02/10	.00/10	.03/11	.06/12	.08/13	.10/14	.11/13	.12/13
	13	.06/13	.06/13	.05/13	.05/13	.04/13	.02/13	.00/13	.03/13	.05/13	.08/14	.10/15	.11/15	.11/15
	15	.06/14	.05/14	.05/14	.04/14	.03/14	.02/14	.00/14	.03/15	.05/16	.07/16	.09/16	.10/17	.11/17
	17	.05/16	.05/16	.05/16	.04/16	.03/16	.02/16	.00/16	.02/17	.05/17	.07/17	.09/17	.10/18	.10/18
	19	.05/18	.05/18	.05/18	.04/18	.03/18	.02/18	.00/18	.02/18	.04/18	.06/18	.08/19	.09/20	.09/20
	21	.05/21	.05/21	.05/21	.04/21	.03/18	.02/18	.00/18	.02/19	.04/20	.06/20	.07/21	.08/22	.09/22
15	7	.06/ 7	.06/ 7	.06/ 7	.06/ 7	.06/ 6	.04/ 6	.01/ 6	.03/ 8	.06/10	.10/14	.12/17	.12/20	.12/20
	9	.06/ 8	.06/ 7	.06/ 7	.06/ 7	.05/ 6	.03/ 6	.01/ 6	.03/10	.07/11	.11/14	.14/17	.14/20	.15/20
	11	.06/ 8	.06/ 8	.06/ 7	.05/ 7	.04/ 6	.02/ 6	.00/10	.03/12	.07/13	.10/14	.14/17	.15/20	.16/20
	13	.05/14	.05/14	.05/14	.05/13	.04/13	.02/13	.00/11	.03/13	.06/14	.10/14	.13/17	.14/20	.15/20
	15	.05/16	.05/16	.05/16	.04/14	.03/14	.02/14	.00/14	.03/15	.06/16	.09/14	.12/17	.13/20	.14/20
	17	.05/16	.05/16	.05/16	.04/16	.03/16	.02/16	.00/16	.03/17	.05/17	.08/14	.11/17	.12/20	.13/20
	19	.05/18	.05/18	.04/18	.04/18	.03/18	.02/18	.00/18	.02/17	.05/18	.07/20	.10/17	.11/20	.12/20
	21	.05/21	.05/21	.04/21	.04/21	.03/21	.02/18	.00/18	.02/20	.04/21	.07/22	.09/17	.10/20	.11/20
20	7	.06/ 8	.06/ 8	.06/ 8	.06/ 7	.06/ 7	.04/ 6	.01/ 6	.04/ 9	.09/13	.12/19	.08/26	.07/35	.07/35
	9	.07/ 8	.07/ 8	.07/ 8	.06/ 7	.05/ 7	.03/ 6	.01/ 6	.04/10	.09/13	.13/19	.12/23	.11/26	.11/27
	11	.06/ 8	.06/ 8	.06/ 8	.05/ 7	.04/ 7	.03/ 6	.01/10	.03/12	.08/13	.13/19	.13/23	.13/26	.14/27
	13	.06/ 8	.05/ 8	.05/ 8	.05/ 7	.04/ 7	.02/13	.00/11	.03/13	.07/13	.12/19	.13/23	.14/26	.15/27
	15	.05/16	.05/16	.05/16	.04/16	.03/14	.02/14	.00/13	.03/16	.06/13	.11/19	.13/23	.14/26	.14/27
	17	.05/18	.05/18	.04/16	.04/16	.03/16	.02/16	.00/16	.03/17	.06/13	.09/19	.12/23	.13/26	.13/27
	19	.05/18	.05/18	.04/18	.04/18	.03/18	.02/18	.00/18	.02/18	.05/13	.08/19	.11/23	.12/26	.12/27
	21	.04/21	.04/21	.04/21	.04/21	.03/21	.01/18	.00/18	.02/20	.05/22	.08/19	.10/23	.11/26	.12/27
25	7	.06/ 8	.06/ 8	.06/ 8	.06/ 8	.06/ 7	.04/ 6	.01/ 5	.04/ 9	.12/17	.09/27	.07/45	.07/ 7	.08/ 7
	9	.07/ 8	.07/ 8	.07/ 8	.06/ 8	.05/ 7	.03/ 6	.01/ 6	.04/11	.11/17	.12/24	.09/31	.09/39	.09/42
	11	.07/ 8	.07/ 8	.06/ 8	.05/ 8	.04/ 7	.03/ 6	.01/10	.04/12	.10/17	.13/24	.12/30	.11/33	.11/35
	13	.06/ 8	.06/ 8	.05/ 8	.05/ 8	.04/ 7	.02/ 6	.00/11	.03/14	.09/17	.13/24	.13/30	.12/33	.13/33
	15	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.03/16	.02/14	.00/13	.03/15	.08/17	.12/24	.13/30	.13/33	.13/33
	17	.05/18	.05/18	.04/18	.04/16	.03/16	.02/16	.00/14	.03/17	.07/17	.10/24	.12/30	.13/33	.13/33
	19	.04/18	.04/18	.04/18	.04/18	.03/18	.02/18	.00/16	.03/18	.06/17	.09/24	.11/30	.12/33	.13/33
	21	.04/21	.04/21	.04/21	.03/21	.03/21	.01/18	.00/18	.02/20	.05/17	.09/24	.10/30	.11/33	.12/33

ASR

LONGCRESTED
RMS LON ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
(ACC. X 100)
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.10/ 8	.11/ 8	.11/ 7	.13/ 6	.16/ 5	.14/ 5	.03/ 4	.14/ 5	.15/ 5	.13/ 7	.08/ 6	.11/ 8	.11/ 8
	9	.13/ 9	.13/ 9	.13/ 9	.13/ 8	.13/ 5	.10/ 5	.02/ 4	.10/ 5	.12/ 8	.13/ 8	.06/ 6	.12/ 8	.13/ 9
	11	.13/10	.13/10	.13/10	.12/10	.10/10	.07/ 5	.01/ 4	.08/ 5	.11/10	.12/10	.05/ 6	.12/ 9	.14/10
	13	.13/11	.12/11	.12/11	.10/11	.09/10	.06/ 5	.01/ 4	.06/10	.09/10	.11/11	.04/ 6	.10/10	.13/11
	15	.12/13	.11/13	.11/13	.09/13	.07/13	.05/ 5	.01/ 4	.05/12	.08/13	.10/13	.03/13	.09/12	.12/13
	17	.10/14	.10/14	.09/14	.08/14	.06/13	.04/13	.01/ 4	.04/13	.07/13	.09/14	.03/14	.08/13	.11/14
	19	.09/14	.09/14	.08/14	.07/14	.05/14	.03/14	.01/14	.04/14	.06/14	.08/14	.02/16	.07/14	.10/14
	21	.08/16	.08/16	.07/16	.06/16	.05/16	.03/16	.00/14	.03/16	.05/16	.07/16	.02/16	.06/16	.09/16
5	7	.16/ 6	.16/ 6	.17/ 6	.19/ 6	.20/ 6	.15/ 5	.02/ 4	.12/ 5	.07/ 6	.10/ 8	.11/ 9	.11/10	.11/10
	9	.16/ 7	.16/ 7	.16/ 6	.16/ 6	.15/ 6	.11/ 5	.01/ 4	.09/ 5	.05/ 6	.11/ 8	.14/10	.14/10	.14/11
	11	.15/10	.15/10	.14/10	.14/ 6	.12/ 6	.08/ 5	.01/ 4	.07/10	.04/ 6	.10/10	.13/11	.14/12	.15/12
	13	.13/12	.13/12	.13/12	.12/11	.10/ 6	.06/ 5	.01/10	.06/11	.03/ 6	.08/12	.12/12	.14/13	.14/13
	15	.12/13	.12/13	.11/13	.10/13	.08/13	.05/ 5	.01/12	.05/12	.02/13	.07/13	.11/13	.12/13	.13/13
	17	.11/14	.10/14	.10/14	.09/14	.07/14	.04/ 5	.01/13	.04/13	.02/15	.06/14	.10/14	.11/15	.11/15
	19	.09/16	.09/16	.09/16	.07/16	.06/14	.03/14	.00/14	.04/14	.02/17	.06/15	.09/16	.10/16	.10/16
	21	.08/16	.08/16	.08/16	.07/16	.05/16	.03/16	.00/16	.03/16	.02/17	.05/17	.08/17	.09/17	.09/17
10	7	.22/ 7	.23/ 7	.23/ 7	.24/ 6	.23/ 6	.16/ 5	.02/ 4	.10/ 5	.11/ 9	.12/10	.12/12	.12/13	.12/13
	9	.21/ 7	.21/ 7	.21/ 7	.20/ 6	.18/ 6	.11/ 5	.01/ 6	.08/ 9	.11/10	.14/11	.15/12	.15/13	.15/13
	11	.18/ 7	.18/ 7	.17/ 7	.16/ 6	.14/ 6	.08/ 5	.01/ 6	.07/10	.10/11	.13/12	.14/13	.15/13	.15/13
	13	.15/ 7	.15/ 7	.15/ 7	.13/ 7	.11/ 6	.06/ 5	.01/10	.06/11	.09/12	.12/13	.13/14	.14/13	.14/13
	15	.13/13	.13/13	.12/ 7	.11/ 7	.09/ 6	.05/ 5	.01/11	.05/13	.08/13	.10/14	.12/15	.13/15	.13/15
	17	.11/14	.11/14	.11/14	.09/14	.07/14	.04/ 5	.01/13	.04/14	.07/14	.09/15	.10/15	.11/16	.12/16
	19	.10/16	.10/16	.09/16	.08/16	.06/14	.04/ 5	.00/14	.03/15	.06/16	.08/17	.09/17	.10/17	.10/17
	21	.09/16	.09/16	.08/16	.07/16	.05/16	.03/16	.00/16	.03/17	.05/17	.07/17	.08/17	.09/18	.09/18
15	7	.26/ 7	.26/ 7	.27/ 7	.27/ 7	.25/ 6	.17/ 6	.02/ 6	.08/ 8	.12/10	.13/14	.12/17	.10/20	.10/20
	9	.26/ 7	.26/ 7	.26/ 7	.24/ 7	.20/ 6	.12/ 6	.02/ 6	.07/ 9	.12/10	.14/14	.15/17	.14/20	.14/20
	11	.22/ 7	.22/ 7	.21/ 7	.19/ 7	.15/ 6	.09/ 6	.01/ 6	.06/10	.11/12	.13/14	.15/17	.15/20	.15/20
	13	.18/ 8	.18/ 7	.17/ 7	.15/ 7	.12/ 6	.07/ 6	.01/ 6	.05/12	.09/13	.12/14	.13/17	.14/20	.14/20
	15	.15/ 8	.15/ 7	.14/ 7	.12/ 7	.10/ 6	.06/ 6	.01/ 6	.05/13	.08/14	.10/14	.12/17	.12/20	.13/20
	17	.13/ 8	.13/ 7	.12/ 7	.10/ 7	.08/ 6	.04/ 6	.01/11	.04/14	.07/15	.09/14	.11/17	.11/20	.11/20
	19	.11/ 8	.11/ 7	.10/ 7	.09/ 7	.07/ 6	.04/ 6	.01/14	.03/15	.06/16	.08/14	.09/17	.10/20	.10/20
	21	.10/18	.09/18	.09/18	.07/16	.06/ 6	.03/ 6	.00/16	.03/17	.05/17	.07/14	.08/17	.09/20	.09/20
20	7	.28/ 8	.28/ 8	.29/ 7	.30/ 7	.28/ 7	.19/ 6	.03/ 5	.08/ 8	.12/13	.11/19	.05/25	.04/31	.04/33
	9	.31/ 8	.30/ 8	.29/ 8	.27/ 7	.22/ 7	.14/ 6	.02/ 5	.07/10	.12/13	.13/19	.09/23	.07/26	.07/27
	11	.26/ 8	.25/ 8	.24/ 8	.21/ 7	.17/ 7	.10/ 6	.02/ 6	.06/10	.11/13	.13/19	.11/23	.09/26	.09/27
	13	.21/ 8	.21/ 8	.19/ 8	.17/ 7	.13/ 7	.08/ 6	.01/ 6	.05/12	.09/13	.12/19	.11/23	.10/26	.10/27
	15	.17/ 8	.17/ 8	.16/ 8	.14/ 7	.11/ 7	.06/ 6	.01/ 6	.05/13	.08/13	.10/19	.10/23	.10/26	.10/27
	17	.14/ 8	.14/ 8	.13/ 8	.11/ 7	.09/ 7	.05/ 6	.01/10	.04/15	.07/13	.09/19	.09/23	.09/26	.09/27
	19	.12/ 8	.12/ 8	.11/ 8	.09/ 7	.07/ 7	.04/ 6	.01/11	.03/16	.06/13	.08/19	.08/23	.09/26	.09/27
	21	.11/ 8	.10/ 8	.09/ 8	.08/ 7	.06/ 7	.03/ 6	.01/12	.03/17	.05/13	.07/19	.08/23	.08/26	.08/27
25	7	.28/ 8	.29/ 8	.30/ 8	.31/ 7	.29/ 7	.21/ 6	.03/ 4	.08/ 9	.12/17	.06/26	.05/ 6	.06/ 6	.06/ 7
	9	.34/ 8	.34/ 8	.33/ 8	.30/ 8	.25/ 7	.15/ 6	.02/ 5	.07/ 9	.12/17	.09/24	.05/31	.05/37	.06/ 7
	11	.30/ 8	.29/ 8	.27/ 8	.24/ 8	.19/ 7	.11/ 6	.02/ 5	.06/11	.11/17	.10/24	.07/30	.06/33	.06/35
	13	.24/ 8	.24/ 8	.22/ 8	.19/ 8	.15/ 7	.08/ 6	.01/ 5	.05/12	.09/17	.10/24	.08/30	.07/33	.07/33
	15	.20/ 8	.19/ 8	.18/ 8	.15/ 8	.12/ 7	.07/ 6	.01/ 5	.05/13	.08/17	.09/24	.08/30	.07/33	.07/33
	17	.16/ 8	.16/ 8	.15/ 8	.12/ 8	.09/ 7	.05/ 6	.01/10	.04/15	.07/17	.08/24	.08/30	.07/33	.07/33
	19	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.08/ 7	.04/ 6	.01/11	.03/16	.06/17	.07/24	.07/30	.07/33	.07/33

ASR

LONGCRESTED

RMS LAT DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{DE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.05/ 8	.11/ 8	.16/ 7	.20/ 7	.18/ 7	.16/ 8	.21/ 7	.21/ 7	.17/ 7	.11/ 8	.05/ 8	.00/10
	9	0.00/**	.07/10	.14/10	.19/10	.22/10	.21/10	.20/10	.24/10	.25/10	.22/10	.16/10	.08/10	.00/10
	11	0.00/**	.08/10	.14/10	.19/10	.22/10	.22/10	.22/10	.24/10	.25/10	.22/10	.17/10	.09/10	.00/10
	13	0.00/**	.07/10	.14/10	.19/10	.21/14	.22/14	.22/10	.23/10	.24/10	.21/10	.16/10	.09/10	.00/10
	15	0.00/**	.07/14	.13/14	.18/14	.21/16	.22/16	.22/16	.23/16	.22/10	.20/10	.15/10	.08/10	.00/10
	17	0.00/**	.07/16	.13/16	.18/16	.21/16	.22/18	.22/18	.23/18	.22/16	.19/16	.14/10	.08/10	.00/10
	19	0.00/**	.07/18	.13/18	.17/18	.20/18	.22/18	.23/18	.23/18	.21/18	.18/18	.13/18	.07/10	.00/10
	21	0.00/**	.07/21	.13/21	.17/21	.21/21	.22/21	.23/21	.23/21	.21/21	.18/21	.13/21	.07/21	.00/10
5	7	0.00/**	.04/ 8	.08/ 8	.13/ 7	.17/ 7	.17/ 7	.16/ 8	.23/ 8	.26/ 8	.24/ 9	.18/10	.11/10	.00/10
	9	0.00/**	.06/10	.12/10	.17/10	.20/10	.20/10	.20/10	.26/10	.29/10	.28/10	.22/10	.13/10	.00/10
	11	0.00/**	.07/11	.13/11	.18/10	.20/10	.21/10	.22/10	.26/10	.28/10	.26/10	.21/10	.12/10	.00/10
	13	0.00/**	.07/11	.13/11	.17/11	.20/10	.21/10	.22/10	.25/10	.26/10	.24/10	.19/10	.11/10	.00/10
	15	0.00/**	.07/11	.13/11	.17/16	.19/16	.21/16	.22/16	.24/15	.25/15	.22/10	.17/10	.10/10	.00/10
	17	0.00/**	.06/16	.12/16	.16/16	.19/16	.21/16	.22/16	.24/17	.24/17	.21/17	.16/17	.09/10	.00/10
	19	0.00/**	.06/18	.12/18	.16/18	.19/21	.21/18	.23/18	.23/18	.23/19	.20/19	.15/20	.08/20	.00/10
	21	0.00/**	.06/21	.12/21	.16/21	.19/21	.22/21	.23/21	.23/22	.22/22	.20/22	.15/22	.08/22	.00/10
10	7	0.00/**	.03/ 8	.07/ 8	.11/ 7	.15/ 7	.16/ 7	.16/ 8	.25/ 8	.33/ 9	.37/10	.19/12	.09/13	.00/13
	9	0.00/**	.05/10	.09/10	.14/10	.17/10	.19/10	.20/10	.27/10	.34/10	.35/10	.21/12	.11/13	.00/13
	11	0.00/**	.06/13	.11/12	.15/11	.19/11	.20/10	.21/10	.26/10	.31/10	.31/10	.20/12	.11/13	.00/13
	13	0.00/**	.06/13	.11/13	.15/12	.19/11	.20/10	.22/14	.25/14	.28/10	.27/10	.19/14	.10/13	.00/13
	15	0.00/**	.06/13	.11/13	.15/16	.19/16	.21/16	.22/16	.25/15	.26/16	.25/16	.18/16	.10/13	.00/13
	17	0.00/**	.05/13	.10/18	.15/18	.18/18	.21/16	.23/16	.24/18	.25/20	.23/18	.17/19	.09/20	.00/20
	19	0.00/**	.05/18	.10/18	.15/18	.18/18	.21/21	.23/18	.24/19	.24/20	.22/21	.16/22	.09/22	.00/22
	21	0.00/**	.05/21	.10/21	.15/21	.19/21	.21/21	.23/21	.24/22	.24/22	.21/23	.15/24	.08/24	.00/24
15	7	0.00/**	.03/ 8	.06/ 8	.09/ 7	.13/ 7	.14/ 7	.16/ 8	.27/ 9	.42/10	.34/14	.32/17	.21/20	.00/**
	9	0.00/**	.04/10	.08/10	.12/10	.15/10	.17/10	.20/10	.28/10	.38/10	.33/14	.28/17	.18/20	.00/**
	11	0.00/**	.05/13	.09/12	.13/12	.16/11	.19/11	.21/10	.27/10	.33/10	.30/14	.25/17	.15/20	.00/**
	13	0.00/**	.05/14	.09/13	.13/13	.17/13	.20/12	.22/14	.26/14	.30/10	.27/14	.22/17	.13/20	.00/**
	15	0.00/**	.05/14	.09/13	.13/13	.17/16	.20/16	.22/16	.26/15	.28/17	.26/14	.21/17	.12/20	.00/**
	17	0.00/**	.05/14	.09/18	.13/18	.17/18	.20/16	.23/16	.25/19	.27/19	.25/14	.20/17	.11/20	.00/**
	19	0.00/**	.05/18	.09/18	.13/18	.17/18	.20/18	.23/18	.25/20	.26/21	.24/22	.19/17	.11/20	.00/**
	21	0.00/**	.05/21	.09/21	.14/21	.17/21	.21/21	.23/21	.25/22	.26/23	.23/25	.18/26	.10/20	.00/**
20	7	0.00/**	.02/ 8	.05/ 8	.08/ 8	.11/ 7	.13/ 7	.16/ 8	.29/ 9	.36/13	.45/19	.38/70	.25/63	.00/**
	9	0.00/**	.03/10	.07/ 9	.10/10	.13/10	.16/10	.20/10	.29/10	.34/13	.41/19	.35/23	.24/63	.00/**
	11	0.00/**	.04/13	.08/13	.11/12	.15/12	.18/11	.21/10	.28/13	.32/13	.37/19	.32/23	.22/26	.00/**
	13	0.00/**	.04/14	.09/14	.12/13	.16/13	.19/13	.22/14	.27/15	.31/13	.34/19	.29/23	.19/26	.00/**
	15	0.00/**	.04/14	.09/14	.12/14	.16/16	.19/16	.23/16	.27/16	.30/13	.32/19	.27/23	.18/26	.00/**
	17	0.00/**	.04/14	.09/14	.12/18	.16/18	.19/18	.23/16	.26/20	.29/20	.30/19	.25/23	.16/26	.00/**
	19	0.00/**	.04/21	.09/18	.13/18	.16/18	.20/18	.23/18	.26/20	.28/22	.29/19	.24/23	.15/26	.00/**
	21	0.00/**	.04/21	.09/21	.13/21	.16/21	.20/21	.23/21	.26/22	.28/24	.28/19	.23/23	.14/26	.00/**
25	7	0.00/**	.02/ 8	.04/ 8	.07/ 8	.10/ 8	.12/ 7	.16/ 8	.32/ 9	.48/17	.51/39	.38/**	.21/ 7	.00/**
	9	0.00/**	.03/10	.06/ 9	.09/ 9	.12/10	.15/10	.20/10	.31/10	.45/17	.48/24	.43/45	.27/57	.00/**
	11	0.00/**	.03/12	.07/13	.10/13	.13/12	.17/11	.21/10	.30/13	.41/17	.44/24	.40/30	.27/57	.00/**
	13	0.00/**	.04/14	.07/14	.11/14	.14/13	.18/13	.22/14	.29/15	.38/17	.41/24	.36/30	.24/33	.00/**
	15	0.00/**	.04/16	.08/14	.11/14	.15/14	.19/16	.23/16	.28/17	.36/17	.38/24	.33/30	.22/33	.00/**
	17	0.00/**	.04/16	.08/16	.12/18	.15/18	.19/18	.23/16	.28/18	.35/17	.37/24	.31/30	.21/33	.00/**
	19	0.00/**	.04/16	.08/21	.12/18	.15/18	.19/18	.23/18	.28/20	.33/17	.35/24	.29/30	.19/33	.00/**
	21	0.00/**	.04/21	.08/21	.12/21	.15/21	.19/21	.23/21	.28/23	.32/17	.33/24	.28/30	.18/33	.00/**

ASR

LONGCRESTED
RMS LAT VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.05/ 7	.09/ 7	.14/ 7	.19/ 7	.18/ 7	.15/ 7	.21/ 6	.20/ 7	.15/ 7	.09/ 7	.05/ 8	.00/ 8
	9	0.00/**	.06/ 9	.11/ 9	.15/ 8	.18/ 8	.18/ 9	.16/10	.20/10	.20/ 9	.16/ 9	.12/10	.06/10	.00/10
	11	0.00/**	.05/10	.10/10	.14/10	.16/10	.16/10	.15/10	.18/10	.18/10	.15/10	.11/10	.06/10	.00/10
	13	0.00/**	.05/10	.09/10	.12/10	.14/10	.14/10	.13/10	.15/10	.15/10	.13/10	.10/10	.05/10	.00/10
	15	0.00/**	.04/10	.08/10	.10/10	.12/10	.12/10	.12/10	.13/10	.13/10	.12/10	.09/10	.05/10	.00/10
	17	0.00/**	.04/10	.07/10	.09/14	.11/16	.11/16	.11/16	.12/10	.11/10	.10/10	.07/10	.04/10	.00/10
	19	0.00/**	.03/16	.06/16	.08/16	.09/16	.10/16	.10/16	.10/16	.10/10	.09/10	.07/10	.04/10	.00/10
	21	0.00/**	.03/18	.05/18	.07/18	.09/18	.09/18	.09/18	.09/18	.09/18	.08/10	.06/10	.03/10	.00/10
5	7	0.00/**	.04/ 7	.09/ 7	.14/ 7	.18/ 7	.18/ 7	.15/ 7	.22/ 7	.21/ 7	.17/ 8	.12/10	.07/10	.00/10
	9	0.00/**	.05/ 9	.10/ 8	.15/ 8	.18/ 8	.17/ 9	.16/10	.21/10	.21/10	.19/10	.14/10	.08/10	.00/10
	11	0.00/**	.05/11	.10/11	.14/10	.16/10	.16/10	.15/10	.18/10	.19/10	.17/10	.13/10	.07/10	.00/10
	13	0.00/**	.05/11	.09/11	.12/10	.14/10	.14/10	.13/10	.15/10	.16/10	.14/10	.11/10	.06/10	.00/10
	15	0.00/**	.04/11	.08/11	.10/10	.12/10	.12/10	.12/10	.13/10	.14/10	.12/10	.09/10	.05/10	.00/10
	17	0.00/**	.04/11	.07/11	.09/11	.10/10	.11/10	.11/16	.12/10	.12/10	.10/10	.08/10	.04/10	.00/10
	19	0.00/**	.03/11	.06/11	.08/16	.09/16	.10/16	.10/16	.11/16	.10/17	.09/10	.07/10	.04/10	.00/10
	21	0.00/**	.03/11	.05/11	.07/18	.09/18	.09/18	.09/18	.10/18	.09/19	.08/10	.06/10	.03/10	.00/10
10	7	0.00/**	.04/ 7	.08/ 7	.13/ 7	.17/ 7	.18/ 7	.15/ 7	.22/ 7	.24/ 9	.22/10	.10/12	.04/13	.00/13
	9	0.00/**	.05/ 8	.09/ 8	.14/ 8	.17/ 8	.17/ 9	.16/ 9	.20/10	.22/10	.20/10	.10/12	.05/13	.00/13
	11	0.00/**	.05/13	.09/10	.13/10	.15/10	.15/10	.15/10	.17/10	.19/10	.17/10	.09/12	.05/13	.00/13
	13	0.00/**	.04/13	.08/12	.11/11	.14/11	.14/10	.13/10	.15/10	.16/10	.14/10	.08/12	.04/13	.00/13
	15	0.00/**	.04/13	.07/13	.10/11	.12/11	.12/10	.12/14	.13/10	.13/10	.12/10	.07/14	.04/13	.00/13
	17	0.00/**	.03/13	.06/13	.09/12	.11/11	.11/16	.11/16	.12/15	.12/10	.10/10	.06/15	.03/13	.00/13
	19	0.00/**	.03/13	.06/13	.08/18	.09/16	.10/16	.10/16	.10/17	.10/20	.09/10	.06/19	.03/13	.00/13
	21	0.00/**	.03/13	.05/13	.07/18	.09/18	.09/18	.09/18	.09/19	.09/20	.08/10	.05/21	.03/13	.00/13
15	7	0.00/**	.04/ 8	.08/ 7	.12/ 7	.16/ 7	.17/ 7	.15/ 7	.22/ 8	.26/10	.14/14	.08/17	.04/20	.00/**
	9	0.00/**	.04/ 8	.09/ 8	.13/ 8	.16/ 8	.16/ 9	.15/ 9	.20/10	.22/10	.14/14	.09/17	.04/20	.00/20
	11	0.00/**	.04/10	.09/10	.12/10	.15/10	.15/10	.14/10	.17/10	.18/10	.12/14	.08/17	.04/20	.00/20
	13	0.00/**	.04/13	.08/13	.11/12	.13/11	.13/11	.13/10	.15/10	.15/10	.11/14	.07/17	.04/20	.00/20
	15	0.00/**	.04/14	.07/13	.10/13	.11/12	.12/11	.12/14	.13/14	.13/10	.10/14	.07/17	.03/20	.00/20
	17	0.00/**	.03/14	.06/13	.09/13	.10/16	.11/16	.11/16	.11/15	.11/10	.09/14	.06/17	.03/20	.00/20
	19	0.00/**	.03/14	.06/13	.08/18	.09/18	.10/16	.10/16	.10/19	.10/10	.08/14	.06/17	.03/20	.00/20
	21	0.00/**	.03/14	.05/18	.07/18	.08/18	.09/18	.09/18	.09/20	.09/21	.07/14	.05/17	.03/20	.00/20
20	7	0.00/**	.03/ 7	.07/ 7	.12/ 7	.16/ 7	.17/ 7	.15/ 7	.21/ 8	.15/13	.10/19	.05/26	.03/52	.00/**
	9	0.00/**	.04/ 8	.08/ 8	.12/ 8	.15/ 8	.16/ 9	.15/ 9	.19/10	.15/13	.11/19	.06/23	.04/26	.00/**
	11	0.00/**	.04/10	.08/10	.11/10	.14/10	.15/10	.14/10	.17/10	.14/13	.11/19	.07/23	.04/26	.00/**
	13	0.00/**	.04/14	.08/13	.10/13	.12/12	.13/11	.13/10	.14/13	.12/13	.10/19	.07/23	.04/26	.00/**
	15	0.00/**	.04/14	.07/14	.09/13	.11/13	.12/12	.12/14	.13/15	.11/13	.10/19	.07/23	.04/26	.00/**
	17	0.00/**	.03/14	.06/14	.08/14	.10/13	.11/16	.11/16	.11/16	.10/13	.09/19	.06/23	.03/26	.00/**
	19	0.00/**	.03/14	.05/14	.07/14	.09/18	.10/16	.10/16	.10/20	.09/13	.08/19	.06/23	.03/26	.00/**
	21	0.00/**	.03/14	.05/14	.07/18	.08/18	.09/18	.09/18	.09/20	.09/22	.08/19	.05/23	.03/26	.00/**
25	7	0.00/**	.03/ 7	.07/ 7	.11/ 7	.15/ 7	.16/ 7	.15/ 7	.21/ 9	.14/17	.07/37	.04/45	.02/ 7	.00/**
	9	0.00/**	.04/ 9	.08/ 9	.11/ 8	.14/ 8	.15/ 9	.15/ 9	.19/ 9	.15/17	.09/24	.05/42	.03/52	.00/**
	11	0.00/**	.04/10	.08/10	.11/10	.13/10	.14/10	.15/10	.16/10	.14/17	.09/24	.06/30	.03/33	.00/**
	13	0.00/**	.04/13	.07/13	.10/13	.12/13	.13/12	.13/10	.14/14	.13/17	.09/24	.06/30	.03/33	.00/**
	15	0.00/**	.03/16	.06/14	.09/14	.11/13	.12/13	.12/14	.13/15	.12/17	.09/24	.06/30	.03/33	.00/**
	17	0.00/**	.03/16	.06/14	.08/14	.10/14	.11/16	.11/16	.11/17	.11/17	.09/24	.06/30	.03/33	.00/**
	19	0.00/**	.03/16	.05/14	.07/14	.09/18	.10/16	.10/16	.10/18	.10/17	.08/24	.06/30	.03/33	.00/**
	21	0.00/**	.02/16	.05/16	.07/18	.08/18	.09/18	.09/18	.10/20	.09/17	.08/24	.05/30	.03/33	.00/**

ASR

LONGCRESTED
RMS LAT ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
(ACC. X 100)
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	0.00/**	.12/ 7	.26/ 7	.43/ 7	.60/ 6	.63/ 6	.49/ 6	.75/ 5	.62/ 6	.42/ 7	.26/ 7	.12/ 7	.00/ 7
	9	0.00/**	.13/ 8	.27/ 8	.40/ 7	.51/ 7	.51/ 8	.43/ 8	.59/ 6	.54/ 7	.42/ 7	.28/ 8	.14/ 8	.00/10
	11	0.00/**	.12/10	.23/ 9	.33/ 9	.41/ 9	.41/10	.36/10	.47/10	.44/10	.36/10	.25/10	.13/10	.00/10
	13	0.00/**	.10/10	.19/10	.27/10	.33/10	.33/10	.30/10	.37/10	.35/10	.29/10	.21/10	.11/10	.00/10
	15	0.00/**	.08/10	.16/10	.22/10	.26/10	.26/10	.24/10	.30/10	.29/10	.24/10	.17/10	.09/10	.00/10
	17	0.00/**	.07/10	.13/10	.18/10	.22/10	.22/10	.20/10	.24/10	.24/10	.20/10	.14/10	.08/10	.00/10
	19	0.00/**	.06/10	.11/10	.15/10	.18/10	.18/10	.17/10	.20/10	.20/10	.17/10	.12/10	.06/10	.00/10
	21	0.00/**	.05/10	.09/10	.13/10	.15/10	.16/10	.15/10	.17/10	.17/10	.14/10	.10/10	.05/10	.00/10
5	7	0.00/**	.14/ 7	.30/ 7	.48/ 7	.66/ 6	.68/ 6	.48/ 6	.70/ 6	.57/ 7	.41/ 8	.27/ 9	.14/10	.00/10
	9	0.00/**	.15/ 8	.30/ 7	.45/ 7	.56/ 7	.55/ 7	.43/ 8	.56/ 7	.51/ 8	.41/10	.29/10	.16/10	.00/10
	11	0.00/**	.14/ 9	.26/ 8	.37/ 8	.45/ 9	.43/10	.36/10	.45/10	.42/10	.34/10	.25/10	.14/10	.00/10
	13	0.00/**	.12/11	.22/11	.30/10	.36/10	.34/10	.30/10	.36/10	.33/10	.28/10	.20/10	.11/10	.00/10
	15	0.00/**	.10/11	.18/11	.25/10	.29/10	.28/10	.24/10	.29/10	.27/10	.22/10	.16/10	.09/10	.00/10
	17	0.00/**	.08/11	.15/11	.20/10	.24/10	.23/10	.20/10	.24/10	.22/10	.18/10	.13/10	.07/10	.00/10
	19	0.00/**	.07/11	.13/11	.17/10	.20/10	.19/10	.17/10	.20/10	.18/10	.15/10	.11/10	.06/10	.00/10
	21	0.00/**	.06/11	.11/11	.14/10	.17/10	.16/10	.15/10	.17/10	.16/10	.13/10	.09/10	.05/10	.00/10
10	7	0.00/**	.16/ 7	.33/ 7	.53/ 7	.72/ 6	.71/ 6	.48/ 6	.64/ 6	.54/ 8	.43/10	.16/12	.07/13	.00/13
	9	0.00/**	.16/ 8	.33/ 7	.48/ 7	.60/ 7	.56/ 7	.42/ 8	.52/ 9	.47/10	.38/10	.16/12	.07/13	.00/13
	11	0.00/**	.15/ 8	.28/ 8	.40/ 8	.48/ 7	.45/10	.35/10	.41/10	.38/10	.30/10	.14/12	.07/13	.00/13
	13	0.00/**	.12/13	.23/10	.33/10	.38/10	.36/10	.29/10	.32/10	.30/10	.24/10	.12/12	.06/13	.00/13
	15	0.00/**	.10/13	.19/11	.26/11	.31/11	.29/10	.24/10	.26/10	.24/10	.19/10	.10/12	.05/13	.00/13
	17	0.00/**	.08/13	.16/12	.22/11	.25/11	.24/10	.20/10	.22/10	.20/10	.16/10	.09/12	.04/13	.00/13
	19	0.00/**	.07/13	.13/13	.18/11	.21/11	.20/10	.17/10	.18/10	.17/10	.13/10	.07/12	.04/13	.00/13
	21	0.00/**	.06/13	.11/13	.15/11	.18/11	.17/10	.15/10	.15/10	.14/10	.11/10	.06/12	.03/13	.00/13
15	7	0.00/**	.17/ 7	.35/ 7	.56/ 7	.75/ 6	.73/ 6	.47/ 6	.57/ 7	.48/10	.18/14	.08/17	.03/20	.00/20
	9	0.00/**	.18/ 8	.35/ 8	.51/ 7	.62/ 7	.58/ 7	.41/ 8	.46/ 9	.40/10	.18/14	.09/17	.04/20	.00/20
	11	0.00/**	.16/ 8	.30/ 8	.42/ 7	.49/ 7	.46/ 9	.35/ 9	.37/10	.31/10	.16/14	.09/17	.04/20	.00/20
	13	0.00/**	.13/ 8	.25/ 8	.34/ 8	.39/10	.37/10	.29/10	.29/10	.25/10	.14/14	.08/17	.04/20	.00/20
	15	0.00/**	.11/13	.20/11	.28/11	.32/11	.30/10	.24/10	.24/10	.20/10	.12/14	.07/17	.03/20	.00/20
	17	0.00/**	.09/13	.17/13	.23/12	.26/11	.25/10	.20/10	.20/10	.17/10	.10/14	.06/17	.03/20	.00/20
	19	0.00/**	.08/13	.14/13	.19/13	.22/11	.21/11	.17/10	.17/10	.14/10	.09/14	.05/17	.03/20	.00/20
	21	0.00/**	.06/13	.12/13	.16/13	.18/12	.17/11	.15/14	.14/10	.12/10	.08/14	.05/17	.02/20	.00/20
20	7	0.00/**	.18/ 7	.37/ 7	.59/ 6	.77/ 6	.75/ 6	.47/ 6	.50/ 8	.21/13	.09/19	.03/25	.04/ 4	.00/70
	9	0.00/**	.19/ 8	.37/ 8	.53/ 8	.64/ 7	.59/ 7	.41/ 8	.41/ 9	.21/13	.11/19	.05/23	.03/26	.00/30
	11	0.00/**	.16/ 8	.32/ 8	.44/ 8	.51/ 7	.47/ 9	.35/ 9	.33/10	.18/13	.11/19	.05/23	.03/26	.00/27
	13	0.00/**	.14/ 9	.26/ 8	.36/ 8	.40/ 7	.37/10	.29/10	.27/10	.16/13	.10/19	.05/23	.03/26	.00/27
	15	0.00/**	.11/ 9	.22/ 8	.29/ 8	.33/11	.30/11	.24/10	.22/10	.14/13	.09/19	.05/23	.03/26	.00/27
	17	0.00/**	.09/14	.18/14	.24/13	.27/12	.25/11	.20/10	.18/10	.12/13	.08/19	.05/23	.03/26	.00/27
	19	0.00/**	.08/14	.15/14	.20/13	.22/13	.21/11	.17/10	.16/15	.11/13	.07/19	.05/23	.02/26	.00/27
	21	0.00/**	.07/14	.13/14	.17/13	.19/13	.18/11	.15/14	.13/16	.09/13	.07/19	.04/23	.02/26	.00/27
25	7	0.00/**	.19/ 7	.38/ 7	.60/ 7	.78/ 6	.76/ 6	.47/ 6	.45/ 9	.15/17	.06/27	.05/ 4	.03/ 4	.00/ 8
	9	0.00/**	.19/ 8	.38/ 7	.54/ 7	.65/ 7	.60/ 7	.41/ 8	.37/ 9	.17/17	.07/24	.04/33	.02/42	.00/**
	11	0.00/**	.17/ 9	.32/ 9	.45/ 8	.52/ 8	.47/ 9	.35/ 9	.30/ 9	.16/17	.07/24	.04/30	.02/33	.00/48
	13	0.00/**	.14/ 9	.26/ 9	.36/ 8	.41/ 8	.38/10	.29/10	.24/ 9	.14/17	.07/24	.04/30	.02/33	.00/33
	15	0.00/**	.12/10	.22/ 9	.30/ 8	.33/12	.31/11	.24/10	.20/ 9	.13/17	.07/24	.04/30	.02/33	.00/33
	17	0.00/**	.10/10	.18/ 9	.25/13	.27/13	.26/11	.20/10	.17/ 9	.11/17	.07/24	.04/30	.02/33	.00/33
	19	0.00/**	.08/16	.15/14	.20/14	.23/13	.21/12	.17/10	.15/15	.10/17	.06/24	.04/30	.02/33	.00/33

ASR

LONGCRESTED

RMS VER DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.09/ 8	.09/ 8	.10/ 8	.13/ 8	.18/ 7	.23/ 7	.26/ 7	.22/ 7	.17/ 7	.13/ 8	.10/ 8	.09/ 8	.09/ 8
	9	.15/10	.15/10	.16/10	.18/10	.21/ 9	.25/ 9	.26/ 9	.24/ 9	.21/ 9	.18/10	.16/10	.15/10	.15/10
	11	.19/11	.19/11	.20/11	.21/11	.23/11	.25/10	.26/10	.25/10	.23/11	.21/11	.20/11	.19/11	.19/11
	13	.21/13	.21/13	.22/13	.23/13	.24/13	.25/13	.26/13	.25/13	.24/13	.23/13	.22/13	.21/13	.21/13
	15	.22/16	.23/16	.23/16	.24/16	.25/16	.25/16	.26/16	.25/16	.25/16	.24/16	.23/16	.23/16	.22/16
	17	.23/18	.23/18	.24/18	.24/18	.25/18	.25/18	.26/18	.25/18	.25/18	.24/18	.24/18	.23/18	.23/18
	19	.24/18	.24/18	.24/18	.24/18	.25/18	.25/18	.25/18	.25/18	.25/18	.24/18	.24/18	.24/18	.24/18
	21	.24/21	.24/21	.24/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.24/21	.24/21	.24/21
5	7	.11/ 8	.12/ 8	.14/ 7	.17/ 7	.21/ 7	.25/ 7	.25/ 7	.21/ 7	.16/ 8	.12/ 9	.10/10	.08/10	.08/10
	9	.17/10	.17/10	.19/10	.21/10	.24/ 9	.26/ 9	.26/ 9	.23/10	.20/10	.17/11	.15/11	.14/12	.14/12
	11	.20/11	.20/11	.21/11	.23/11	.25/11	.26/10	.26/10	.25/11	.22/12	.20/13	.19/13	.18/13	.18/13
	13	.22/13	.22/13	.23/13	.24/13	.25/13	.26/13	.26/13	.25/13	.23/13	.22/14	.21/14	.20/15	.20/15
	15	.23/16	.23/16	.24/16	.24/16	.25/16	.26/16	.26/16	.25/16	.24/17	.23/17	.22/17	.22/17	.22/17
	17	.24/18	.24/18	.24/18	.25/18	.25/18	.26/18	.26/18	.25/18	.24/18	.24/19	.23/19	.23/20	.23/20
	19	.24/18	.24/18	.24/18	.25/18	.25/18	.25/18	.25/18	.25/18	.24/19	.24/19	.24/20	.23/20	.23/20
	21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/22	.24/22	.24/22	.24/22	.24/22
10	7	.16/ 7	.17/ 7	.18/ 7	.21/ 7	.24/ 7	.27/ 6	.25/ 7	.20/ 8	.15/10	.11/11	.09/12	.08/13	.07/13
	9	.22/ 8	.22/ 8	.23/ 8	.25/ 9	.26/ 9	.27/ 9	.26/ 9	.23/10	.20/11	.17/12	.15/13	.13/14	.13/14
	11	.24/11	.24/11	.24/11	.25/11	.26/11	.27/11	.26/10	.24/12	.22/13	.20/14	.18/15	.17/15	.17/15
	13	.24/13	.25/13	.25/13	.26/13	.26/13	.27/13	.26/13	.25/13	.23/15	.22/15	.20/16	.20/17	.20/17
	15	.25/16	.25/16	.25/16	.26/16	.26/16	.26/16	.26/16	.25/15	.24/16	.23/17	.22/18	.21/18	.21/18
	17	.25/18	.25/18	.25/18	.26/18	.26/18	.26/18	.26/18	.25/18	.24/20	.23/18	.23/20	.22/20	.22/20
	19	.25/18	.25/18	.25/18	.25/18	.26/18	.26/18	.25/18	.25/19	.24/20	.24/21	.23/22	.23/22	.23/22
	21	.25/21	.25/21	.25/21	.25/21	.26/21	.26/21	.25/21	.25/22	.25/22	.24/23	.24/24	.24/24	.23/25
15	7	.19/ 8	.20/ 8	.21/ 7	.24/ 7	.27/ 7	.28/ 6	.25/ 7	.20/ 9	.15/11	.11/14	.08/17	.07/20	.07/20
	9	.27/ 8	.27/ 8	.28/ 8	.29/ 7	.29/ 7	.29/ 9	.26/ 9	.23/10	.19/12	.16/14	.14/17	.13/20	.12/20
	11	.28/ 8	.28/ 8	.28/11	.28/11	.28/11	.28/11	.26/10	.24/12	.21/14	.19/16	.17/17	.17/20	.16/20
	13	.27/13	.28/13	.28/13	.28/13	.28/13	.27/13	.26/13	.24/14	.23/16	.21/17	.20/17	.19/20	.19/20
	15	.27/16	.27/16	.27/16	.27/16	.27/16	.27/16	.26/16	.25/16	.23/17	.22/19	.21/20	.21/20	.21/20
	17	.27/18	.27/18	.27/18	.27/18	.26/18	.26/18	.26/18	.25/19	.24/19	.23/20	.22/22	.22/22	.22/22
	19	.26/18	.26/18	.26/18	.26/18	.26/18	.26/18	.25/18	.25/20	.24/21	.23/22	.23/23	.23/24	.23/25
	21	.26/21	.26/21	.26/21	.26/21	.26/21	.26/21	.25/21	.25/22	.24/23	.24/25	.24/26	.23/27	.23/27
20	7	.20/ 8	.21/ 8	.23/ 8	.26/ 7	.29/ 7	.30/ 6	.25/ 7	.19/ 9	.14/13	.10/19	.08/25	.07/31	.07/35
	9	.31/ 8	.31/ 8	.31/ 8	.32/ 8	.32/ 7	.30/ 8	.26/ 9	.22/11	.18/13	.15/19	.14/23	.12/26	.12/27
	11	.32/ 8	.32/ 8	.32/ 8	.32/ 8	.31/11	.29/11	.26/10	.23/13	.21/13	.19/19	.17/23	.16/26	.16/27
	13	.31/13	.31/13	.30/13	.30/13	.29/13	.28/13	.26/13	.24/15	.22/17	.21/19	.20/23	.19/26	.19/27
	15	.30/16	.29/16	.29/16	.29/16	.28/16	.27/16	.26/16	.24/16	.23/18	.22/19	.21/23	.21/26	.21/27
	17	.28/18	.28/18	.28/18	.28/18	.27/18	.26/18	.25/18	.25/18	.24/20	.23/22	.22/23	.22/26	.22/27
	19	.28/18	.27/18	.27/18	.27/18	.27/18	.26/18	.25/18	.25/20	.24/22	.23/24	.23/23	.23/26	.22/27
	21	.27/21	.27/21	.27/21	.27/21	.26/21	.26/21	.25/21	.25/22	.24/24	.24/26	.23/23	.23/26	.23/27
25	7	.19/ 9	.20/ 8	.23/ 8	.26/ 8	.31/ 7	.32/ 6	.25/ 7	.19/10	.14/17	.10/27	.08/57	.07/**	.06/**
	9	.33/ 9	.34/ 9	.35/ 8	.35/ 8	.35/ 7	.32/ 6	.26/ 9	.22/12	.18/17	.15/24	.13/33	.12/45	.12/48
	11	.36/ 9	.36/ 9	.36/ 8	.35/ 8	.33/ 7	.30/11	.26/11	.23/13	.20/17	.19/24	.17/30	.16/33	.16/35
	13	.34/ 9	.34/ 9	.34/ 8	.32/ 8	.31/13	.28/13	.26/13	.24/15	.22/17	.21/24	.19/30	.19/33	.19/33
	15	.32/16	.32/16	.32/16	.30/16	.29/16	.27/16	.26/16	.24/17	.23/17	.22/24	.21/30	.21/33	.20/33
	17	.30/18	.30/18	.30/18	.29/18	.28/18	.27/18	.25/18	.24/18	.23/17	.23/24	.22/30	.22/33	.22/33
	19	.29/18	.29/18	.29/18	.28/18	.27/18	.26/18	.25/18	.24/20	.24/23	.23/24	.23/30	.22/33	.22/33
	21	.28/21	.28/21	.28/21	.27/21	.27/21	.26/21	.25/21	.25/23	.24/26	.24/27	.23/30	.23/33	.23/33

ASR

LONGCRESTED
RMS VER VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.07/ 8	.08/ 8	.09/ 8	.11/ 7	.17/ 7	.24/ 6	.27/ 6	.21/ 6	.15/ 7	.11/ 7	.08/ 8	.07/ 8	.07/ 8
	9	.10/ 9	.11/ 9	.12/ 9	.14/ 9	.17/ 8	.21/ 8	.23/ 8	.20/ 8	.16/ 8	.13/ 9	.11/ 9	.10/ 9	.10/ 9
	11	.11/10	.12/10	.12/10	.14/10	.16/10	.19/10	.20/10	.18/10	.15/10	.14/10	.12/10	.12/10	.11/10
	13	.11/12	.12/12	.12/12	.13/12	.14/11	.16/11	.17/11	.16/11	.14/11	.13/12	.12/12	.12/12	.11/12
	15	.11/14	.11/14	.11/14	.12/13	.13/13	.14/13	.15/13	.14/13	.13/13	.12/13	.11/14	.11/14	.11/14
	17	.10/16	.10/16	.11/16	.11/16	.12/14	.13/14	.13/14	.13/14	.12/14	.11/16	.11/16	.10/16	.10/16
	19	.10/18	.10/16	.10/16	.10/16	.11/16	.11/16	.12/16	.11/16	.11/16	.10/16	.10/16	.10/18	.10/18
	21	.09/18	.09/18	.09/18	.10/18	.10/18	.10/18	.11/18	.10/18	.10/18	.10/18	.09/18	.09/18	.09/18
5	7	.12/ 7	.12/ 7	.14/ 7	.18/ 6	.22/ 6	.27/ 6	.26/ 6	.19/ 7	.12/ 8	.08/ 9	.06/10	.05/10	.05/10
	9	.14/ 9	.15/ 9	.16/ 9	.19/ 8	.21/ 8	.24/ 7	.23/ 8	.18/ 9	.14/ 9	.11/10	.09/11	.08/11	.08/11
	11	.15/10	.15/10	.16/10	.17/10	.19/10	.20/10	.20/10	.16/10	.13/11	.11/12	.10/12	.09/13	.09/13
	13	.14/12	.14/12	.15/12	.16/12	.17/11	.18/11	.17/11	.15/12	.13/12	.11/13	.10/13	.09/14	.09/14
	15	.13/14	.13/14	.14/13	.14/13	.15/13	.15/13	.15/13	.13/13	.12/14	.11/15	.10/15	.09/16	.09/16
	17	.12/16	.12/16	.13/16	.13/14	.13/14	.14/14	.13/14	.13/14	.12/15	.11/17	.10/17	.09/17	.09/17
	19	.11/16	.11/16	.12/16	.12/16	.12/16	.12/16	.12/16	.11/16	.10/17	.09/19	.09/19	.08/20	.08/20
	21	.10/18	.11/18	.11/18	.11/18	.11/18	.11/18	.11/18	.10/18	.09/19	.09/19	.08/20	.08/20	.08/20
10	7	.19/ 7	.20/ 7	.22/ 7	.25/ 7	.28/ 6	.30/ 6	.26/ 6	.17/ 8	.10/ 9	.07/11	.05/12	.04/13	.03/13
	9	.23/ 7	.23/ 7	.24/ 7	.25/ 7	.27/ 7	.27/ 6	.23/ 8	.17/ 9	.12/10	.09/12	.07/13	.06/14	.06/14
	11	.21/ 8	.22/ 8	.22/ 7	.23/ 7	.23/10	.22/10	.20/10	.15/10	.12/12	.09/13	.08/14	.07/15	.07/15
	13	.19/12	.19/12	.20/12	.20/11	.20/11	.19/11	.17/11	.14/12	.11/13	.09/14	.08/15	.08/16	.07/16
	15	.17/13	.17/13	.17/13	.17/13	.17/13	.17/13	.15/13	.12/14	.10/15	.09/17	.08/17	.08/18	.07/18
	17	.15/14	.15/14	.15/14	.15/14	.15/14	.14/14	.13/14	.11/15	.10/17	.09/18	.08/19	.07/20	.07/20
	19	.14/16	.14/16	.14/16	.14/16	.13/16	.13/16	.12/16	.10/17	.09/18	.08/20	.08/21	.07/22	.07/22
	21	.13/18	.12/18	.12/18	.12/18	.12/18	.12/18	.11/18	.09/19	.08/20	.08/21	.07/22	.07/22	.07/22
15	7	.25/ 8	.26/ 8	.28/ 7	.31/ 7	.33/ 7	.33/ 6	.26/ 6	.15/ 8	.08/10	.05/14	.03/17	.02/20	.02/20
	9	.31/ 8	.32/ 8	.32/ 8	.33/ 7	.32/ 7	.29/ 6	.23/ 8	.15/10	.10/12	.07/14	.05/17	.04/20	.04/20
	11	.29/ 8	.29/ 8	.29/ 8	.29/ 7	.27/ 7	.25/ 6	.20/10	.14/11	.10/13	.08/14	.06/17	.05/20	.05/20
	13	.26/ 8	.25/ 8	.25/ 8	.24/ 7	.23/ 7	.21/11	.17/11	.13/13	.10/15	.08/17	.07/17	.06/20	.06/20
	15	.22/ 8	.22/ 8	.22/ 8	.21/13	.20/13	.18/13	.15/13	.12/14	.09/16	.08/18	.07/17	.06/20	.06/20
	17	.19/14	.19/14	.19/14	.18/14	.17/14	.15/14	.13/14	.11/16	.09/18	.08/20	.07/20	.06/20	.06/20
	19	.17/16	.17/16	.17/16	.16/16	.15/16	.14/16	.12/16	.10/17	.08/19	.07/20	.06/22	.06/22	.06/23
	21	.15/18	.15/18	.15/18	.14/18	.13/18	.12/18	.11/18	.09/20	.08/21	.07/22	.06/23	.06/24	.06/25
20	7	.28/ 8	.28/ 8	.31/ 8	.34/ 7	.38/ 7	.37/ 6	.26/ 5	.14/ 9	.07/13	.03/19	.02/25	.01/31	.01/33
	9	.39/ 8	.39/ 8	.39/ 8	.39/ 7	.37/ 7	.32/ 6	.23/ 8	.14/10	.08/13	.05/19	.03/23	.03/26	.02/27
	11	.37/ 8	.37/ 8	.36/ 8	.35/ 8	.32/ 7	.27/ 6	.19/10	.13/12	.09/13	.06/19	.05/23	.04/26	.04/27
	13	.32/ 8	.32/ 8	.31/ 8	.29/ 8	.27/ 7	.22/11	.17/11	.12/13	.09/16	.06/19	.05/23	.04/26	.04/27
	15	.28/ 8	.27/ 8	.26/ 8	.25/ 8	.22/ 7	.19/13	.15/13	.11/15	.08 17	.07/19	.05/23	.05/26	.05/27
	17	.24/ 8	.23/ 8	.23/ 8	.21/ 8	.19/14	.16/14	.13/14	.10/17	.08/20	.07/19	.06/23	.05/26	.05/27
	19	.21/ 8	.20/ 8	.20/ 8	.18/16	.17/16	.14/16	.12/16	.09/18	.08/20	.06/22	.06/23	.05/26	.05/27
	21	.18/18	.18/18	.17/18	.16/18	.15/18	.13/18	.11/18	.09/20	.07/22	.06/24	.05/23	.05/26	.05/27
25	7	.28/ 8	.29/ 8	.32/ 8	.37/ 8	.41/ 7	.40/ 6	.27/ 5	.12/ 9	.05/17	.02/26	.01/42	.01/57	.01/ 7
	9	.45/ 9	.45/ 9	.46/ 8	.45/ 8	.43/ 7	.36/ 6	.23/ 8	.12/11	.07/17	.04/24	.02/31	.02/39	.01/42
	11	.44/ 9	.44/ 9	.44/ 8	.41/ 8	.36/ 7	.29/ 6	.19/10	.12/13	.07/17	.05/24	.03/30	.02/33	.02/33
	13	.39/ 9	.39/ 9	.38/ 8	.34/ 8	.30/ 7	.24/ 6	.17/11	.11/14	.07/17	.05/24	.04/30	.03/33	.03/33
	15	.33/ 9	.33/ 9	.32/ 8	.29/ 8	.25/ 7	.20/13	.15/13	.10/15	.07/17	.06/24	.04/30	.04/33	.04/33
	17	.28/ 9	.28/ 9	.27/ 8	.24/ 8	.21/ 7	.17/14	.13/14	.10/18	.07/17	.06/24	.05/30	.04/33	.04/33
	19	.24/ 9	.24/ 9	.23/ 8	.21/ 8	.18/16	.15/16	.12/16	.09/18	.07/17	.06/24	.05/30	.04/33	.04/33
	21	.21/ 9	.21/ 9	.20/ 8	.18/ 8	.16/18	.13/18	.11/18	.08/20	.07/23	.05/24	.05/30	.04/33	.04/33

ASR

LONGCRESTED

RMS VER ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.21/ 8	.22/ 8	.25/ 7	.33/ 7	.52/ 6	.81/ 5	.92/ 5	.69/ 6	.45/ 6	.30/ 7	.23/ 7	.20/ 8	.19/ 8
	9	.24/ 9	.25/ 9	.28/ 8	.34/ 8	.46/ 7	.64/ 6	.71/ 5	.57/ 6	.42/ 7	.32/ 8	.27/ 8	.24/ 9	.23/ 9
	11	.23/10	.24/10	.26/10	.30/ 9	.38/ 8	.50/ 6	.55/ 6	.46/ 8	.36/ 8	.30/ 9	.26/10	.24/10	.23/10
	13	.21/10	.22/10	.23/10	.26/10	.32/10	.39/ 9	.43/ 6	.37/ 9	.30/10	.26/10	.23/10	.22/10	.21/10
	15	.19/12	.19/11	.20/11	.22/10	.26/10	.32/10	.34/10	.30/10	.25/10	.22/10	.20/11	.19/11	.19/12
	17	.17/13	.17/13	.18/13	.19/12	.22/11	.26/10	.28/10	.25/10	.21/11	.19/12	.18/13	.17/13	.17/13
	19	.15/14	.15/14	.15/13	.17/13	.19/13	.22/13	.23/12	.21/13	.18/13	.16/13	.15/13	.15/14	.14/14
	21	.13/14	.13/14	.13/14	.14/14	.16/14	.19/14	.20/13	.18/14	.16/14	.14/14	.13/14	.13/14	.13/14
5	7	.40/ 7	.42/ 7	.48/ 7	.61/ 6	.79/ 6	.97/ 5	.92/ 5	.57/ 6	.31/ 8	.19/ 8	.13/ 9	.11/10	.10/10
	9	.42/ 8	.44/ 8	.48/ 7	.56/ 6	.67/ 6	.77/ 6	.71/ 5	.48/ 7	.31/ 9	.22/10	.17/10	.15/11	.14/11
	11	.38/10	.39/10	.42/ 9	.47/ 8	.54/ 6	.59/ 6	.54/ 6	.39/ 9	.27/10	.21/10	.17/11	.15/12	.15/12
	13	.33/10	.34/10	.36/10	.39/10	.43/ 6	.46/ 6	.43/ 6	.32/10	.24/10	.19/12	.16/12	.14/13	.14/13
	15	.28/11	.29/11	.30/10	.32/10	.35/10	.37/ 6	.34/10	.26/11	.20/12	.16/13	.14/13	.13/13	.13/13
	17	.24/12	.25/12	.25/12	.27/11	.29/10	.30/10	.28/10	.22/12	.17/13	.14/14	.13/14	.12/15	.12/15
	19	.21/13	.21/13	.22/13	.23/13	.24/12	.25/12	.23/12	.18/13	.15/14	.13/15	.11/15	.11/16	.10/16
	21	.18/14	.18/14	.19/14	.20/13	.21/13	.21/13	.20/13	.16/14	.13/15	.11/15	.10/17	.09/17	.09/17
10	7	.74/ 7	.77/ 7	.84/ 7	.95/ 7	1.07/ 6	1.13/ 6	.92/ 5	.47/ 7	.22/ 9	.12/10	.07/12	.05/13	.05/13
	9	.80/ 7	.81/ 7	.84/ 7	.89/ 7	.92/ 6	.90/ 6	.71/ 5	.40/ 8	.23/10	.14/12	.10/13	.08/14	.08/14
	11	.69/ 7	.69/ 7	.71/ 7	.72/ 7	.73/ 6	.69/ 6	.54/ 5	.33/ 9	.21/11	.14/13	.11/14	.09/15	.09/15
	13	.57/ 7	.57/ 7	.57/ 7	.58/ 7	.58/ 6	.54/ 6	.43/ 9	.27/10	.18/12	.13/13	.11/15	.09/16	.09/16
	15	.46/ 7	.47/ 7	.47/ 7	.47/ 7	.46/ 6	.43/ 6	.34/10	.23/11	.16/13	.12/14	.10/15	.09/17	.08/17
	17	.39/ 7	.39/ 7	.39/ 7	.39/ 7	.38/ 6	.35/ 6	.28/10	.19/13	.14/14	.11/15	.09/17	.08/18	.08/18
	19	.32/ 7	.32/ 7	.32/ 7	.32/ 7	.31/ 6	.29/ 6	.23/12	.16/13	.12/16	.10/17	.08/18	.07/18	.07/18
	21	.27/ 7	.27/ 7	.27/ 7	.27/ 7	.26/ 6	.24/ 6	.20/13	.14/15	.11/17	.09/18	.07/19	.07/20	.07/20
15	7	1.03/ 8	1.06/ 8	1.13/ 7	1.24/ 7	1.33/ 7	1.29/ 6	.92/ 5	.39/ 8	.15/10	.06/14	.03/17	.02/20	.02/20
	9	1.21/ 8	1.22/ 8	1.23/ 7	1.23/ 7	1.18/ 7	1.04/ 6	.71/ 5	.34/ 9	.17/11	.09/14	.05/17	.04/20	.04/20
	11	1.06/ 8	1.05/ 8	1.04/ 7	1.01/ 7	.94/ 7	.80/ 6	.54/ 5	.28/10	.16/13	.09/14	.07/17	.05/20	.05/20
	13	.86/ 8	.86/ 8	.84/ 7	.80/ 7	.73/ 7	.62/ 6	.43/ 9	.24/11	.14/14	.09/16	.07/17	.06/20	.05/20
	15	.70/ 8	.70/ 8	.69/ 8	.64/ 7	.58/ 7	.49/ 6	.34/10	.20/12	.13/15	.09/17	.07/17	.06/20	.05/20
	17	.58/ 8	.57/ 8	.55/ 8	.52/ 7	.47/ 7	.40/ 6	.28/10	.17/13	.11/16	.08/17	.06/17	.06/20	.05/20
	19	.48/ 8	.47/ 8	.46/ 8	.43/ 7	.39/ 7	.33/ 6	.23/13	.15/14	.10/17	.07/19	.06/20	.05/20	.05/20
	21	.40/ 8	.40/ 8	.38/ 8	.36/ 7	.33/ 7	.27/ 6	.20/13	.13/15	.09/18	.07/20	.06/22	.05/22	.05/20
20	7	1.20/ 8	1.22/ 8	1.32/ 8	1.47/ 7	1.57/ 7	1.48/ 6	.93/ 5	.31/ 8	.10/13	.03/19	.01/24	.01/29	.01/31
	9	1.60/ 8	1.59/ 8	1.58/ 8	1.56/ 7	1.45/ 7	1.20/ 6	.71/ 5	.28/10	.11/13	.05/19	.03/23	.02/26	.02/27
	11	1.45/ 8	1.43/ 8	1.38/ 8	1.31/ 7	1.16/ 7	.92/ 6	.54/ 5	.24/10	.11/13	.06/19	.04/23	.03/26	.02/27
	13	1.19/ 8	1.17/ 8	1.12/ 8	1.04/ 7	.91/ 7	.71/ 6	.43/ 9	.20/12	.11/13	.06/19	.04/23	.03/26	.03/27
	15	.97/ 8	.95/ 8	.90/ 8	.83/ 7	.72/ 7	.56/ 6	.34/10	.17/13	.10/13	.06/19	.04/23	.04/26	.03/27
	17	.79/ 8	.78/ 8	.74/ 8	.68/ 7	.58/ 7	.45/ 6	.28/11	.15/14	.09/17	.06/19	.04/23	.04/26	.03/27
	19	.66/ 8	.64/ 8	.61/ 8	.56/ 7	.48/ 7	.37/ 6	.23/13	.13/16	.08/18	.06/19	.04/23	.04/26	.03/27
	21	.55/ 8	.54/ 8	.51/ 8	.47/ 7	.40/ 7	.31/ 6	.20/14	.11/16	.07/20	.05/19	.04/23	.04/26	.03/27
25	7	1.26/ 8	1.32/ 8	1.45/ 8	1.62/ 8	1.79/ 7	1.67/ 6	.95/ 5	.25/ 9	.06/17	.02/25	.04/ 4	.04/ 4	.03/ 4
	9	1.91/ 9	1.94/ 8	1.96/ 8	1.88/ 8	1.74/ 7	1.38/ 6	.72/ 5	.23/10	.08/17	.03/24	.03/30	.02/37	.02/39
	11	1.81/ 9	1.81/ 8	1.77/ 8	1.61/ 8	1.40/ 7	1.05/ 6	.55/ 5	.20/11	.08/17	.04/24	.03/30	.02/33	.02/33
	13	1.51/ 9	1.51/ 9	1.45/ 8	1.29/ 8	1.10/ 7	.81/ 6	.43/ 9	.17/13	.08/17	.04/24	.03/30	.02/33	.02/33
	15	1.24/ 9	1.23/ 9	1.17/ 8	1.04/ 8	.87/ 7	.64/ 6	.34/10	.15/14	.08/17	.04/24	.03/30	.02/33	.02/33
	17	1.01/ 9	1.00/ 9	.95/ 8	.84/ 8	.70/ 7	.51/ 6	.28/11	.13/15	.07/17	.04/24	.03/30	.02/33	.02/33
	19	.84/ 9	.83/ 9	.79/ 8	.69/ 8	.57/ 7	.42/ 6	.23/13	.11/17	.07/17	.04/24	.03/30	.02/33	.02/33
	21	.70/ 9	.69/ 9	.66/ 8	.58/ 8	.48/ 7	.35/ 6	.20/14	.10/18	.06/17	.04/24	.03/30	.03/33	.02/33

ASR

SHORTCRESTED

RMS LON DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.07/ 8	.07/ 8	.06/ 8	.06/ 8	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.06/ 8	.06/ 8	.06/ 8
	9	.10/10	.10/10	.09/10	.09/10	.08/10	.07/10	.06/10	.06/10	.07/10	.08/10	.08/10	.09/10	.09/10
	11	.12/11	.12/11	.11/11	.10/11	.09/11	.08/11	.07/11	.07/11	.08/11	.09/11	.10/11	.10/11	.10/11
	13	.14/14	.13/14	.13/14	.11/14	.10/14	.09/14	.08/13	.08/13	.09/13	.10/13	.10/13	.11/13	.11/13
	15	.15/16	.14/16	.13/16	.12/16	.11/16	.09/16	.08/16	.08/16	.09/16	.10/16	.11/16	.12/16	.12/16
	17	.15/18	.15/18	.14/18	.12/18	.11/18	.09/18	.09/18	.09/18	.09/18	.10/18	.11/18	.12/18	.12/18
	19	.16/18	.15/18	.14/18	.13/18	.11/18	.10/18	.09/18	.09/18	.10/18	.11/18	.12/18	.12/18	.12/18
	21	.16/21	.16/21	.15/21	.13/21	.11/21	.10/21	.09/21	.09/21	.10/21	.11/21	.12/21	.12/21	.13/21
5	7	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.04/ 8	.04/ 8	.05/ 9	.06/ 9	.07/10	.08/10	.09/10	.09/10	.09/10
	9	.08/10	.07/10	.07/10	.07/10	.06/10	.06/10	.06/10	.08/11	.09/11	.11/11	.13/11	.14/11	.14/11
	11	.10/12	.09/12	.09/12	.08/12	.07/12	.07/12	.07/12	.09/13	.11/13	.13/13	.15/13	.16/13	.16/13
	13	.11/14	.11/14	.10/14	.09/14	.08/14	.07/14	.08/14	.09/14	.12/14	.14/14	.16/14	.17/14	.18/14
	15	.12/16	.12/16	.11/16	.10/16	.09/16	.08/16	.08/16	.10/16	.12/16	.14/16	.17/16	.18/16	.19/16
	17	.13/18	.12/18	.12/18	.10/18	.09/18	.08/18	.08/18	.10/18	.12/18	.15/18	.17/18	.18/18	.19/18
	19	.13/21	.13/21	.12/21	.11/21	.09/19	.08/20	.08/20	.10/20	.12/20	.15/20	.17/20	.19/20	.19/20
	21	.14/21	.13/21	.13/21	.11/21	.10/21	.09/21	.09/21	.10/22	.12/22	.15/22	.17/22	.19/22	.19/22
10	7	.04/ 8	.04/ 8	.03/ 8	.04/ 8	.04/ 8	.05/12	.07/12	.09/13	.12/13	.14/13	.16/13	.17/13	.17/13
	9	.06/10	.06/10	.06/10	.05/10	.06/10	.07/12	.09/13	.12/13	.15/13	.18/13	.21/13	.22/13	.23/13
	11	.08/12	.08/12	.07/12	.07/12	.07/13	.08/13	.10/14	.13/14	.17/14	.20/14	.23/14	.25/14	.25/14
	13	.09/14	.09/14	.08/14	.08/14	.08/14	.08/14	.11/15	.14/15	.17/16	.21/16	.24/16	.25/16	.26/16
	15	.10/16	.10/16	.09/16	.09/16	.08/16	.09/16	.11/17	.14/17	.17/17	.21/17	.24/18	.25/18	.26/18
	17	.11/18	.10/18	.10/18	.09/18	.08/18	.09/18	.11/18	.14/19	.17/20	.21/20	.23/20	.25/20	.26/20
	19	.11/21	.11/21	.10/21	.10/21	.09/21	.09/21	.11/21	.14/21	.17/21	.20/22	.23/22	.25/22	.25/22
	21	.12/21	.12/21	.11/21	.10/21	.09/21	.09/21	.11/22	.13/23	.17/23	.20/23	.23/24	.24/24	.25/24
15	7	.03/ 8	.03/ 8	.03/ 8	.03/10	.05/14	.09/14	.14/14	.20/17	.27/17	.34/20	.39/20	.43/20	.44/20
	9	.05/10	.05/10	.05/10	.05/10	.06/14	.09/14	.15/17	.21/17	.29/17	.35/20	.41/20	.44/20	.46/20
	11	.06/12	.06/12	.06/12	.06/13	.07/14	.10/17	.15/17	.21/17	.28/20	.34/20	.40/20	.43/20	.44/20
	13	.08/14	.07/14	.07/14	.07/14	.07/14	.10/17	.14/17	.20/20	.26/20	.32/20	.37/20	.41/20	.42/20
	15	.08/16	.08/16	.08/16	.07/16	.08/16	.10/17	.14/17	.19/20	.25/20	.30/20	.35/20	.38/20	.39/20
	17	.09/18	.09/18	.09/18	.08/18	.08/18	.10/17	.13/20	.18/20	.23/20	.29/20	.33/20	.36/20	.37/20
	19	.10/21	.10/21	.09/21	.08/21	.08/21	.10/21	.13/20	.17/20	.22/20	.27/20	.31/20	.34/20	.35/20
	21	.10/21	.10/21	.10/21	.09/21	.09/21	.10/22	.12/23	.17/23	.21/20	.26/20	.30/20	.32/20	.33/20
20	7	.02/ 8	.02/ 8	.02/ 8	.03/13	.08/13	.14/13	.21/19	.28/19	.35/19	.42/39	.47/39	.50/39	.52/39
	9	.04/10	.04/10	.04/10	.04/13	.08/19	.14/19	.21/19	.30/19	.38/23	.46/27	.52/27	.57/27	.58/27
	11	.05/13	.05/13	.05/13	.05/13	.08/19	.13/19	.21/23	.29/23	.38/23	.46/23	.53/26	.57/26	.59/26
	13	.06/14	.06/14	.06/14	.06/13	.08/19	.12/19	.19/23	.27/23	.36/23	.44/26	.51/26	.55/26	.57/26
	15	.07/16	.07/16	.07/16	.07/16	.08/19	.12/23	.18/23	.26/23	.34/26	.42/26	.48/26	.52/26	.53/26
	17	.08/18	.08/18	.07/18	.07/18	.08/19	.11/23	.17/23	.24/23	.31/26	.39/26	.44/26	.48/26	.50/26
	19	.09/21	.08/21	.08/21	.08/21	.08/19	.11/23	.16/23	.22/26	.29/26	.36/26	.41/26	.45/27	.46/27
	21	.09/21	.09/21	.09/21	.08/21	.08/21	.11/23	.15/23	.21/26	.27/26	.34/27	.39/27	.42/27	.43/27
25	7	.02/ 9	.02/ 8	.02/ 9	.05/17	.12/17	.19/17	.27/17	.35/17	.42/17	.47/17	.52/••	.55/••	.56/••
	9	.03/10	.03/10	.03/10	.05/17	.11/17	.19/17	.28/17	.38/17	.47/17	.55/45	.62/45	.66/45	.68/45
	11	.05/13	.04/13	.04/13	.06/17	.10/17	.18/17	.27/24	.37/24	.48/33	.57/33	.65/33	.70/33	.72/33
	13	.06/14	.05/14	.05/14	.06/17	.09/17	.16/24	.25/24	.36/33	.46/33	.56/33	.64/33	.69/33	.71/33
	15	.06/16	.06/16	.06/16	.06/17	.09/17	.15/24	.23/24	.33/33	.44/33	.54/33	.61/33	.67/33	.68/33
	17	.07/18	.07/18	.07/18	.07/17	.09/24	.14/24	.22/30	.31/33	.41/33	.50/33	.58/33	.62/33	.64/33
	19	.08/21	.08/21	.07/21	.07/17	.08/24	.13/24	.20/30	.29/33	.38/33	.46/33	.53/33	.58/33	.60/33
	21	.08/21	.08/21	.08/21	.07/21	.08/24	.12/24	.19/30	.27/33	.35/33	.43/33	.50/33	.54/33	.55/33

ASR

SHORTCRESTED
RMS LON VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.06/ 8	.05/ 6	.05/ 7	.05/ 7	.05/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 8	.05/ 8	.05/ 8
	9	.07/ 9	.07/ 9	.07/ 9	.06/ 9	.06/ 9	.05/ 9	.05/ 9	.05/ 8	.05/ 8	.06/ 9	.06/ 9	.06/ 9	.06/ 9
	11	.08/10	.08/10	.07/10	.06/10	.06/10	.05/10	.05/10	.05/10	.05/10	.06/10	.06/10	.06/10	.07/10
	13	.08/13	.07/13	.07/13	.06/13	.06/13	.05/12	.05/12	.05/12	.05/12	.05/12	.06/12	.06/12	.06/12
	15	.07/14	.07/14	.07/14	.06/14	.05/14	.05/14	.04/14	.04/14	.05/14	.05/14	.06/14	.06/14	.06/14
	17	.07/16	.07/16	.06/16	.06/16	.05/16	.04/16	.04/16	.04/16	.04/16	.05/16	.05/16	.05/16	.06/16
	19	.06/18	.06/18	.06/18	.05/18	.05/18	.04/18	.04/18	.04/18	.04/18	.04/18	.05/18	.05/18	.05/18
	21	.06/18	.06/18	.06/18	.05/18	.04/18	.04/18	.03/18	.03/18	.04/18	.04/18	.05/18	.05/18	.05/18
5	7	.05/ 8	.05/ 8	.04/ 8	.04/ 7	.04/ 7	.04/ 8	.04/ 8	.04/ 9	.05/ 9	.05/ 9	.06/10	.06/10	.06/10
	9	.06/ 9	.06/ 9	.06/ 9	.05/ 9	.05/ 9	.05/ 9	.05/10	.05/10	.06/10	.07/10	.08/11	.08/11	.08/11
	11	.07/10	.07/10	.06/10	.06/10	.05/10	.05/10	.05/11	.05/12	.06/12	.07/12	.08/12	.09/12	.09/12
	13	.07/13	.07/13	.06/13	.06/13	.05/13	.04/13	.04/13	.05/13	.06/13	.07/13	.08/13	.08/13	.09/13
	15	.06/14	.06/14	.06/14	.05/14	.05/14	.04/14	.04/14	.04/14	.05/15	.06/15	.07/15	.08/15	.08/15
	17	.06/16	.06/16	.06/16	.05/16	.04/16	.04/16	.04/16	.04/16	.05/16	.06/17	.07/17	.07/17	.08/17
	19	.06/18	.06/18	.05/18	.05/18	.04/18	.04/18	.03/18	.04/17	.05/17	.06/17	.06/17	.07/17	.07/17
	21	.05/18	.05/18	.05/18	.05/18	.04/18	.03/18	.03/19	.04/20	.04/20	.05/20	.06/20	.06/20	.07/20
10	7	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/10	.05/12	.06/13	.07/13	.07/13	.08/13	.08/13	.09/13
	9	.05/ 9	.05/ 9	.05/ 9	.05/ 9	.05/10	.05/10	.06/13	.07/13	.08/13	.09/13	.10/13	.11/13	.11/13
	11	.06/10	.06/10	.06/10	.05/10	.05/11	.05/12	.05/13	.07/13	.08/13	.09/13	.10/13	.11/13	.11/13
	13	.06/13	.06/13	.06/13	.05/13	.05/13	.05/13	.05/14	.06/14	.07/15	.09/15	.10/15	.10/15	.11/15
	15	.06/14	.06/14	.05/14	.05/14	.05/14	.04/14	.05/15	.06/16	.07/16	.08/16	.09/16	.10/16	.10/16
	17	.06/16	.06/16	.05/16	.05/16	.04/16	.04/16	.04/17	.05/17	.06/17	.08/17	.08/18	.09/18	.09/18
	19	.05/18	.05/18	.05/18	.04/18	.04/18	.04/18	.04/18	.05/18	.06/19	.07/19	.08/20	.08/20	.09/20
	21	.05/18	.05/18	.05/18	.04/18	.04/19	.04/20	.04/20	.05/20	.05/21	.06/21	.07/21	.08/21	.08/21
15	7	.03/ 8	.03/ 8	.03/ 8	.03/ 8	.04/14	.05/14	.06/14	.07/14	.09/14	.10/17	.11/20	.11/20	.12/20
	9	.05/ 9	.05/ 9	.05/ 9	.04/ 9	.04/14	.05/14	.06/17	.08/17	.10/17	.11/17	.13/20	.14/20	.14/20
	11	.05/10	.05/10	.05/10	.05/10	.05/14	.05/14	.06/17	.08/17	.10/17	.11/20	.13/20	.14/20	.14/20
	13	.06/13	.05/13	.05/13	.05/13	.05/14	.05/14	.06/17	.07/17	.09/20	.11/20	.12/20	.13/20	.13/20
	15	.05/14	.05/14	.05/14	.05/14	.04/14	.04/17	.05/17	.07/17	.08/20	.10/20	.11/20	.12/20	.12/20
	17	.05/16	.05/16	.05/16	.04/16	.04/16	.04/17	.05/17	.06/20	.07/20	.09/20	.10/20	.11/20	.11/20
	19	.05/18	.05/18	.05/18	.04/18	.04/18	.04/17	.04/17	.06/20	.07/20	.08/20	.09/20	.10/20	.10/20
	21	.05/21	.05/21	.04/21	.04/21	.04/21	.04/17	.04/20	.05/20	.06/20	.07/20	.08/20	.09/20	.09/20
20	7	.03/ 8	.03/ 8	.03/ 8	.03/13	.04/13	.05/13	.06/13	.07/13	.08/13	.08/13	.08/19	.09/19	.09/19
	9	.04/10	.04/10	.04/ 9	.04/13	.04/13	.05/19	.07/19	.08/19	.09/19	.10/19	.11/23	.12/23	.12/23
	11	.05/11	.05/11	.05/10	.04/13	.04/13	.05/19	.07/19	.08/23	.10/23	.11/23	.12/23	.13/23	.13/23
	13	.05/13	.05/13	.05/13	.04/13	.04/19	.05/19	.06/23	.08/23	.09/23	.11/23	.12/26	.13/26	.13/26
	15	.05/14	.05/14	.05/14	.04/13	.04/19	.05/19	.06/23	.07/23	.09/23	.10/26	.12/26	.12/26	.13/26
	17	.05/16	.05/16	.04/16	.04/16	.04/19	.04/19	.05/23	.07/23	.08/23	.10/26	.11/26	.12/26	.12/26
	19	.05/18	.05/18	.04/18	.04/18	.04/19	.04/19	.05/23	.06/23	.07/26	.09/26	.10/26	.11/26	.11/26
	21	.04/21	.04/21	.04/21	.04/21	.03/19	.04/23	.04/23	.05/23	.07/26	.08/26	.09/26	.10/26	.10/26
25	7	.03/ 8	.03/ 8	.03/ 9	.03/17	.04/17	.05/17	.06/17	.07/17	.08/17	.08/17	.08/17	.08/17	.08/17
	9	.04/10	.04/10	.04/10	.04/17	.04/17	.05/17	.07/17	.08/17	.09/17	.09/17	.10/17	.10/17	.10/17
	11	.04/11	.04/11	.04/11	.04/17	.04/17	.05/17	.07/17	.08/17	.09/17	.10/17	.11/33	.11/33	.12/33
	13	.05/13	.05/13	.04/13	.04/17	.04/17	.05/17	.06/17	.08/17	.09/33	.11/33	.12/33	.12/33	.12/33
	15	.05/14	.05/14	.04/14	.04/17	.04/17	.05/17	.06/24	.07/33	.09/33	.10/33	.12/33	.12/33	.13/33
	17	.04/16	.04/16	.04/16	.04/17	.04/17	.04/17	.05/24	.07/33	.08/33	.10/33	.11/33	.12/33	.12/33
	19	.04/18	.04/18	.04/18	.04/17	.04/17	.04/24	.05/24	.06/33	.08/33	.09/33	.10/33	.11/33	.11/33
	21	.04/21	.04/21	.04/21	.04/17	.03/17	.04/24	.05/30	.06/33	.07/33	.09/33	.10/33	.10/33	.11/33

ASR

SHORTCRESTED

RMS LON ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.15/ 7	.15/ 7	.14/ 7	.14/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7	.13/ 7
	9	.17/ 8	.17/ 8	.16/ 8	.15/ 8	.14/ 8	.13/ 8	.12/ 8	.12/ 8	.13/ 8	.14/ 8	.14/ 8	.15/ 8	.15/ 8
	11	.16/10	.16/10	.15/10	.14/10	.13/ 9	.11/ 9	.11/ 9	.11/ 9	.11/ 9	.12/ 9	.13/ 9	.14/ 9	.14/ 9
	13	.14/10	.14/10	.13/10	.12/10	.11/10	.10/10	.09/10	.09/10	.10/10	.11/10	.12/10	.12/10	.12/10
	15	.13/12	.12/12	.12/12	.11/12	.10/11	.09/11	.08/11	.08/11	.08/11	.09/11	.10/11	.11/11	.11/11
	17	.11/13	.11/13	.10/13	.09/13	.08/13	.07/13	.07/13	.07/13	.07/13	.08/13	.09/13	.09/13	.09/13
	19	.10/14	.10/14	.09/14	.08/14	.07/14	.06/14	.06/14	.06/14	.06/14	.07/14	.08/14	.08/14	.08/14
	21	.09/16	.08/16	.08/16	.07/16	.06/16	.06/16	.05/16	.05/16	.06/16	.06/16	.07/16	.07/16	.07/16
5	7	.15/ 7	.15/ 7	.14/ 7	.14/ 7	.13/ 7	.12/ 7	.12/ 8	.12/ 8	.12/ 9	.12/ 9	.13/ 9	.13/ 9	.14/ 9
	9	.17/ 8	.17/ 8	.16/ 8	.15/ 8	.14/ 8	.12/ 8	.11/ 8	.11/10	.12/10	.13/10	.15/10	.16/10	.16/10
	11	.16/10	.16/10	.15/10	.14/10	.12/ 9	.11/ 9	.10/10	.10/10	.11/11	.13/11	.14/11	.15/11	.15/11
	13	.15/10	.14/10	.14/10	.12/10	.11/10	.09/10	.09/11	.09/11	.10/12	.11/12	.13/12	.14/12	.14/12
	15	.13/12	.13/12	.12/12	.11/12	.09/12	.08/12	.07/12	.08/13	.09/13	.10/13	.11/13	.12/13	.12/13
	17	.11/13	.11/13	.10/13	.09/13	.08/13	.07/13	.06/13	.07/13	.07/14	.09/14	.10/14	.10/14	.11/14
	19	.10/14	.10/14	.09/14	.08/14	.07/14	.06/14	.06/14	.06/15	.06/15	.08/15	.09/15	.09/16	.09/16
	21	.09/16	.08/16	.08/16	.07/16	.06/16	.05/16	.05/16	.05/16	.06/16	.07/16	.08/16	.08/16	.08/16
10	7	.15/ 7	.14/ 7	.14/ 7	.13/ 7	.13/ 7	.13/ 8	.12/10	.12/13	.13/13	.13/13	.13/13	.14/13	.14/13
	9	.17/ 8	.17/ 8	.16/ 8	.15/ 8	.14/ 8	.13/ 8	.12/12	.13/13	.13/13	.14/13	.15/13	.16/13	.16/13
	11	.16/10	.16/10	.15/10	.14/10	.13/10	.12/10	.11/13	.11/13	.12/13	.14/13	.15/13	.15/13	.16/13
	13	.15/10	.14/10	.14/10	.12/10	.11/10	.10/12	.10/13	.10/13	.11/13	.12/13	.13/13	.14/13	.14/13
	15	.13/12	.13/12	.12/12	.11/12	.10/12	.09/13	.08/13	.09/14	.10/14	.11/14	.12/15	.12/15	.13/15
	17	.11/13	.11/13	.10/13	.09/13	.08/13	.07/14	.07/14	.07/15	.08/15	.09/15	.10/15	.11/15	.11/15
	19	.10/14	.10/14	.09/14	.08/14	.07/14	.06/14	.06/15	.06/16	.07/16	.08/16	.09/16	.10/16	.10/16
	21	.09/16	.08/16	.08/16	.07/16	.06/16	.06/16	.05/16	.06/17	.06/17	.07/17	.08/17	.09/17	.09/17
15	7	.14/ 8	.14/ 8	.13/ 8	.13/ 7	.13/ 7	.12/14	.12/14	.12/14	.12/14	.12/14	.12/14	.12/17	.12/17
	9	.17/ 8	.16/ 8	.16/ 8	.15/ 8	.13/ 8	.13/14	.12/14	.12/14	.13/17	.14/17	.14/17	.15/17	.15/17
	11	.16/10	.16/10	.15/10	.14/10	.13/10	.11/14	.11/14	.11/17	.12/17	.13/17	.14/20	.15/20	.15/20
	13	.15/10	.14/10	.14/10	.12/10	.11/10	.10/14	.09/17	.10/17	.11/17	.12/20	.13/20	.13/20	.14/20
	15	.13/12	.13/12	.12/12	.11/12	.10/12	.09/14	.08/17	.08/17	.09/20	.10/20	.11/20	.12/20	.12/20
	17	.11/13	.11/13	.10/13	.09/13	.08/14	.07/14	.07/17	.07/17	.08/20	.09/20	.10/20	.11/20	.11/20
	19	.10/14	.10/14	.09/14	.08/14	.07/14	.06/14	.06/17	.06/17	.07/20	.08/20	.09/20	.09/20	.10/20
	21	.09/16	.08/16	.08/16	.07/16	.06/16	.06/17	.05/17	.06/20	.06/20	.07/20	.08/20	.08/20	.08/20
20	7	.13/ 8	.13/ 8	.13/ 8	.13/ 8	.12/13	.12/13	.11/13	.10/13	.10/13	.09/13	.08/13	.08/13	.07/13
	9	.16/ 9	.16/ 9	.15/ 8	.14/ 8	.13/ 8	.12/13	.11/13	.11/13	.10/19	.10/19	.10/19	.10/19	.10/19
	11	.16/10	.16/10	.15/10	.14/10	.12/10	.11/13	.10/19	.10/19	.10/19	.10/23	.11/23	.11/23	.11/23
	13	.15/10	.14/10	.13/10	.12/10	.11/13	.10/19	.09/19	.09/19	.09/23	.10/23	.10/23	.11/23	.11/23
	15	.13/12	.13/12	.12/12	.11/12	.10/13	.08/19	.08/19	.08/23	.08/23	.09/23	.10/23	.10/26	.10/26
	17	.11/13	.11/13	.10/13	.09/13	.08/13	.07/19	.07/19	.07/23	.07/23	.08/23	.09/26	.09/26	.09/26
	19	.10/14	.10/14	.09/14	.08/14	.07/13	.06/19	.06/23	.06/23	.07/23	.07/26	.08/26	.08/26	.08/26
	21	.09/16	.08/16	.08/16	.07/16	.06/19	.06/19	.05/23	.05/23	.06/23	.06/26	.07/26	.07/26	.08/26
25	7	.13/ 7	.13/ 7	.12/ 7	.12/ 9	.12/17	.11/17	.10/17	.10/17	.09/17	.08/17	.08/17	.07/17	.07/17
	9	.16/ 9	.16/ 9	.15/ 9	.14/ 9	.13/17	.12/17	.11/17	.10/17	.09/17	.08/17	.08/17	.07/17	.07/17
	11	.16/10	.16/10	.15/10	.13/10	.12/17	.11/17	.10/17	.09/17	.09/17	.08/17	.08/17	.08/17	.08/17
	13	.14/10	.14/10	.13/10	.12/10	.11/17	.10/17	.09/17	.08/17	.08/17	.08/17	.08/33	.08/33	.08/33
	15	.13/13	.13/12	.12/12	.11/12	.09/17	.08/17	.08/17	.07/17	.07/17	.08/33	.08/33	.08/33	.08/33
	17	.11/13	.11/13	.10/13	.09/13	.08/17	.07/17	.07/17	.06/17	.07/33	.07/33	.08/33	.08/33	.08/33
	19	.10/14	.10/14	.09/14	.08/17	.07/17	.06/17	.06/17	.06/17	.06/33	.06/33	.07/33	.07/33	.07/33
	21	.09/16	.08/16	.08/16	.07/17	.06/17	.06/17	.05/17	.05/33	.05/33	.06/33	.06/33	.07/33	.07/33

ASR

SHORTCRESTED
RMS LAT DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 8	.05/ 8	.07/ 8	.08/ 8	.10/ 8	.10/ 8	.11/ 8	.10/ 8	.10/ 8	.08/ 8	.06/ 8	.05/ 8	.04/ 8
	9	.07/10	.08/10	.10/10	.11/10	.13/10	.14/10	.15/10	.14/10	.13/10	.12/10	.10/10	.08/10	.07/10
	11	.09/12	.10/12	.12/12	.14/12	.16/12	.17/12	.18/12	.17/12	.16/12	.14/12	.12/12	.10/12	.09/12
	13	.11/13	.11/13	.13/13	.16/13	.18/13	.19/13	.20/13	.19/13	.18/13	.16/13	.14/13	.12/13	.11/13
	15	.11/14	.12/14	.14/14	.17/14	.19/14	.20/14	.20/14	.20/14	.19/14	.17/14	.14/14	.12/14	.11/14
	17	.12/16	.12/16	.14/16	.17/16	.19/16	.20/16	.21/16	.20/16	.19/16	.17/16	.14/16	.12/16	.12/16
	19	.12/18	.13/18	.15/18	.17/18	.19/18	.20/18	.21/18	.20/18	.19/18	.17/18	.15/18	.13/18	.12/18
	21	.12/21	.13/21	.15/21	.17/21	.19/21	.21/21	.21/21	.21/21	.19/21	.17/21	.15/21	.13/21	.12/21
8	7	.04/ 8	.05/ 8	.06/ 8	.08/ 8	.09/ 8	.10/ 8	.11/ 8	.11/ 8	.10/ 8	.09/ 8	.07/ 9	.06/ 9	.05/ 9
	9	.06/10	.07/10	.09/10	.11/10	.13/10	.14/10	.15/11	.15/11	.14/11	.13/11	.11/11	.09/11	.08/11
	11	.08/13	.09/13	.11/13	.13/12	.16/12	.17/12	.18/12	.18/12	.17/12	.15/12	.13/12	.11/12	.11/12
	13	.10/14	.10/13	.13/13	.15/13	.17/13	.19/13	.20/13	.20/13	.18/13	.17/14	.14/14	.13/14	.12/14
	15	.10/16	.11/16	.13/16	.16/15	.18/15	.20/15	.21/15	.20/15	.19/15	.17/15	.15/15	.13/15	.12/15
	17	.11/16	.12/16	.14/16	.16/16	.18/16	.20/16	.21/16	.21/17	.19/17	.18/17	.15/17	.13/18	.13/18
	19	.11/18	.12/18	.14/18	.16/18	.19/18	.20/18	.21/18	.21/19	.20/19	.18/19	.15/19	.13/20	.13/20
	21	.11/21	.12/21	.14/21	.17/21	.19/21	.20/21	.21/21	.21/21	.20/21	.18/22	.15/22	.14/22	.13/22
10	7	.03/ 8	.04/ 8	.06/ 8	.08/ 8	.09/ 8	.11/ 8	.11/ 8	.12/ 9	.11/11	.10/11	.09/12	.07/12	.07/12
	9	.06/10	.06/10	.08/10	.11/10	.13/10	.15/10	.16/11	.16/11	.15/12	.14/12	.12/12	.11/13	.10/13
	11	.07/13	.08/13	.10/12	.13/12	.15/12	.17/12	.18/13	.19/13	.18/13	.17/13	.15/13	.13/14	.12/14
	13	.09/14	.10/14	.12/14	.14/14	.17/14	.19/14	.20/14	.20/14	.19/14	.18/15	.16/15	.14/15	.13/15
	15	.10/16	.11/16	.13/16	.15/16	.18/16	.20/16	.21/16	.21/16	.20/16	.18/16	.16/17	.14/17	.14/17
	17	.10/16	.11/16	.13/16	.16/16	.18/16	.20/17	.21/18	.21/18	.20/18	.18/18	.16/19	.14/19	.14/19
	19	.10/18	.11/18	.13/18	.16/18	.18/19	.20/19	.21/20	.21/20	.20/20	.18/20	.16/21	.15/21	.14/21
	21	.11/21	.12/21	.14/21	.16/21	.19/21	.20/21	.21/21	.21/21	.20/22	.19/22	.16/22	.15/23	.14/23
15	7	.03/ 8	.04/ 8	.06/ 8	.08/ 8	.10/ 8	.12/11	.13/14	.14/14	.14/14	.14/14	.14/14	.13/14	.13/14
	9	.05/10	.06/10	.08/10	.10/10	.13/11	.15/11	.17/14	.18/14	.18/14	.17/14	.16/17	.15/17	.14/17
	11	.07/13	.08/12	.10/12	.13/12	.15/13	.18/13	.19/14	.20/14	.20/14	.19/17	.18/17	.16/17	.16/17
	13	.08/14	.09/14	.11/14	.14/14	.17/14	.19/14	.21/14	.21/14	.21/17	.20/17	.18/17	.17/17	.16/17
	15	.09/16	.10/16	.12/16	.15/16	.18/16	.20/16	.21/16	.22/17	.21/17	.20/17	.18/20	.17/20	.16/20
	17	.09/18	.10/18	.13/16	.15/17	.18/18	.20/18	.22/18	.22/18	.22/20	.20/20	.18/20	.17/20	.16/20
	19	.10/18	.11/18	.13/18	.15/18	.18/19	.20/20	.22/21	.22/21	.21/21	.20/21	.18/22	.17/22	.16/22
	21	.10/21	.11/21	.13/21	.16/21	.18/21	.20/21	.22/22	.22/22	.22/22	.20/23	.18/23	.17/24	.16/24
20	7	.03/ 8	.04/ 8	.05/ 8	.08/13	.11/13	.15/13	.18/13	.20/13	.21/13	.22/13	.21/13	.21/19	.21/19
	9	.05/10	.06/10	.08/10	.10/10	.14/13	.17/13	.21/19	.23/19	.24/19	.24/19	.23/19	.23/19	.23/19
	11	.06/13	.07/12	.09/12	.12/13	.16/13	.19/19	.22/19	.24/19	.25/19	.25/19	.24/19	.23/23	.23/23
	13	.07/14	.08/14	.11/14	.14/14	.17/13	.20/19	.23/19	.25/19	.25/19	.25/23	.24/23	.23/23	.23/23
	15	.08/16	.09/16	.11/16	.14/16	.18/16	.21/19	.23/19	.25/19	.25/23	.24/23	.23/23	.22/23	.22/23
	17	.09/18	.10/18	.12/18	.15/18	.18/19	.21/19	.23/19	.24/23	.25/23	.24/23	.23/23	.22/23	.21/23
	19	.09/18	.10/18	.12/18	.15/18	.18/19	.21/19	.23/23	.24/23	.24/23	.23/23	.22/23	.21/23	.20/23
	21	.09/21	.10/21	.12/21	.15/21	.18/21	.21/23	.23/23	.24/23	.24/23	.23/23	.22/23	.20/26	.20/26
25	7	.03/ 8	.03/ 8	.05/ 9	.09/17	.14/17	.18/17	.22/17	.24/17	.25/17	.25/17	.24/17	.22/17	.21/17
	9	.04/10	.05/10	.07/10	.11/17	.16/17	.20/17	.24/17	.26/17	.28/17	.27/17	.26/17	.25/17	.24/17
	11	.06/13	.07/12	.09/12	.13/17	.17/17	.21/17	.25/17	.27/17	.28/17	.28/17	.27/17	.25/17	.25/17
	13	.07/14	.08/14	.10/14	.14/17	.18/17	.22/17	.25/17	.27/17	.28/17	.28/17	.26/17	.25/24	.25/24
	15	.08/16	.08/16	.11/16	.14/17	.18/17	.22/17	.25/17	.27/17	.28/17	.27/17	.26/24	.25/24	.24/24
	17	.08/18	.09/18	.11/18	.15/17	.18/17	.22/17	.25/17	.27/24	.27/24	.27/24	.26/24	.25/24	.24/30
	19	.08/18	.09/18	.12/18	.15/20	.18/17	.22/17	.24/24	.26/24	.27/24	.26/24	.25/30	.24/30	.23/30
	21	.09/21	.10/21	.12/21	.15/21	.18/24	.22/24	.24/24	.26/24	.26/24	.26/30	.25/30	.23/30	.23/30

ASR

SHORTCRESTED

RMS LAT VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 8	.04/ 8	.06/ 7	.08/ 7	.09/ 7	.10/ 7	.10/ 7	.10/ 7	.09/ 7	.07/ 7	.06/ 7	.04/ 8	.04/ 8
	9	.05/ 9	.05/ 9	.07/ 9	.09/ 9	.10/ 9	.11/ 9	.11/ 9	.11/ 9	.10/ 9	.09/ 9	.07/ 9	.06/ 9	.05/ 9
	11	.06/11	.06/11	.07/11	.09/11	.10/11	.11/11	.11/11	.11/11	.10/11	.09/11	.07/11	.06/11	.06/11
	13	.06/12	.06/12	.07/12	.09/12	.10/12	.11/12	.11/12	.11/12	.10/12	.09/12	.07/12	.06/12	.06/12
	15	.05/14	.06/14	.07/14	.08/13	.09/13	.10/13	.10/13	.10/13	.09/13	.08/13	.07/14	.06/14	.06/14
	17	.05/14	.06/14	.07/14	.08/14	.09/14	.09/14	.10/14	.09/14	.09/14	.08/14	.07/14	.06/14	.05/14
	19	.05/16	.05/16	.06/16	.07/16	.08/16	.09/16	.09/16	.09/16	.08/16	.07/16	.06/16	.05/16	.05/16
	21	.05/18	.05/18	.06/18	.07/18	.07/18	.08/18	.08/18	.08/18	.07/18	.07/18	.06/18	.05/18	.05/18
5	7	.04/ 8	.04/ 7	.06/ 7	.08/ 7	.09/ 7	.10/ 7	.10/ 7	.10/ 7	.09/ 8	.07/ 8	.06/ 8	.04/ 9	.04/ 9
	9	.05/10	.05/ 9	.07/ 9	.09/ 9	.10/ 9	.11/ 9	.11/ 9	.11/ 9	.10/10	.09/11	.07/11	.06/11	.05/11
	11	.05/12	.06/11	.07/11	.09/11	.10/11	.11/11	.11/11	.11/11	.10/11	.09/11	.08/11	.06/11	.06/11
	13	.06/13	.06/13	.07/13	.09/13	.10/13	.11/13	.11/13	.11/12	.10/12	.09/13	.07/13	.06/13	.06/13
	15	.05/14	.06/14	.07/14	.08/14	.09/14	.10/14	.10/14	.10/14	.09/14	.08/14	.07/14	.06/14	.06/14
	17	.05/16	.06/14	.07/14	.08/14	.09/14	.09/14	.10/14	.09/15	.09/15	.08/15	.07/15	.06/15	.05/15
	19	.05/16	.05/16	.06/16	.07/16	.08/16	.09/16	.09/16	.09/16	.08/16	.07/16	.06/17	.05/17	.05/17
	21	.05/18	.05/18	.06/18	.07/18	.07/18	.08/18	.08/18	.08/18	.07/18	.07/19	.06/19	.05/19	.05/19
10	7	.04/ 8	.04/ 7	.06/ 7	.08/ 7	.09/ 7	.10/ 7	.10/ 7	.10/ 8	.09/ 8	.08/ 8	.06/11	.05/12	.04/12
	9	.05/10	.05/ 9	.07/ 9	.09/ 9	.10/ 9	.11/10	.11/10	.11/11	.10/11	.09/11	.07/12	.06/12	.05/12
	11	.05/11	.06/11	.07/11	.09/11	.10/11	.11/11	.11/11	.11/12	.10/12	.09/12	.08/13	.06/13	.06/13
	13	.05/13	.06/13	.07/13	.09/13	.10/13	.11/13	.11/13	.11/13	.10/13	.09/13	.08/14	.06/14	.06/14
	15	.05/14	.06/14	.07/14	.08/14	.09/14	.10/14	.10/14	.10/14	.09/14	.08/15	.07/15	.06/15	.06/16
	17	.05/16	.06/16	.07/16	.08/15	.09/15	.09/15	.10/15	.09/16	.09/16	.08/16	.07/16	.06/17	.05/17
	19	.05/16	.05/16	.06/16	.07/16	.08/16	.09/16	.09/16	.09/16	.08/17	.07/18	.06/18	.05/19	.05/19
	21	.05/18	.05/18	.06/18	.07/18	.07/18	.08/18	.08/18	.08/19	.07/20	.07/20	.06/20	.05/21	.05/21
15	7	.04/ 8	.04/ 7	.06/ 7	.08/ 7	.09/ 8	.10/ 8	.10/ 8	.10/ 8	.09/14	.08/14	.07/14	.05/14	.05/14
	9	.05/ 9	.05/ 9	.07/ 9	.09/ 9	.10/ 9	.11/10	.11/11	.11/11	.11/14	.09/14	.08/14	.06/14	.06/17
	11	.05/11	.06/11	.07/11	.09/11	.10/11	.11/11	.11/12	.11/12	.11/14	.09/14	.08/17	.07/17	.06/17
	13	.05/13	.06/13	.07/13	.09/13	.10/13	.11/13	.11/14	.11/14	.10/14	.09/14	.08/17	.07/17	.06/17
	15	.05/14	.06/14	.07/14	.08/14	.09/14	.10/14	.10/14	.10/14	.10/14	.08/17	.07/17	.06/17	.06/17
	17	.05/16	.05/16	.06/16	.08/16	.09/16	.09/16	.10/16	.09/17	.09/17	.08/17	.07/17	.06/20	.05/20
	19	.05/16	.05/16	.06/16	.07/16	.08/16	.09/16	.09/17	.09/17	.08/17	.07/20	.06/20	.05/20	.05/20
	21	.04/18	.05/18	.06/18	.07/18	.07/18	.08/18	.08/20	.08/20	.08/20	.07/21	.06/21	.05/22	.05/22
20	7	.04/ 8	.04/ 7	.06/ 7	.08/ 8	.09/13	.10/13	.11/13	.11/13	.10/13	.09/13	.07/13	.06/13	.05/13
	9	.05/ 9	.05/ 9	.07/ 9	.09/10	.10/10	.11/13	.12/13	.12/13	.11/13	.10/13	.09/19	.07/19	.07/19
	11	.05/11	.06/11	.07/11	.09/11	.10/13	.11/13	.12/13	.12/19	.11/19	.10/19	.09/19	.07/19	.07/19
	13	.05/13	.06/13	.07/13	.08/13	.10/13	.11/13	.11/13	.11/19	.11/19	.10/19	.08/19	.07/23	.07/23
	15	.05/14	.06/14	.07/14	.08/14	.09/14	.10/13	.10/13	.10/19	.10/19	.09/19	.08/23	.07/23	.06/23
	17	.05/16	.05/16	.06/16	.07/16	.09/16	.09/16	.10/19	.10/19	.09/19	.08/19	.07/23	.06/23	.06/23
	19	.05/16	.05/16	.06/16	.07/16	.08/16	.09/19	.09/19	.09/19	.08/19	.08/23	.07/23	.06/23	.06/23
	21	.04/18	.05/18	.05/18	.06/18	.07/19	.08/19	.08/19	.08/19	.08/23	.07/23	.06/23	.06/23	.05/23
25	7	.04/ 8	.04/ 7	.06/ 7	.08/17	.09/17	.10/17	.11/17	.11/17	.10/17	.09/17	.07/17	.06/17	.05/17
	9	.05/ 9	.05/ 9	.07/10	.09/17	.10/17	.11/17	.12/17	.12/17	.11/17	.10/17	.08/17	.07/17	.06/17
	11	.05/11	.06/10	.07/11	.09/17	.10/17	.11/17	.12/17	.12/17	.11/17	.10/17	.08/17	.07/17	.06/17
	13	.05/13	.06/13	.07/13	.08/13	.10/17	.11/17	.11/17	.11/17	.11/17	.10/17	.08/17	.07/17	.06/17
	15	.05/14	.05/14	.07/14	.08/17	.09/17	.10/17	.11/17	.11/17	.10/17	.09/17	.08/17	.07/17	.06/17
	17	.05/16	.05/16	.06/16	.07/17	.09/17	.09/17	.10/17	.10/17	.09/17	.08/17	.07/17	.06/24	.06/24
	19	.04/18	.05/18	.06/16	.07/17	.08/17	.09/17	.09/17	.09/17	.09/17	.08/17	.07/24	.06/24	.06/24
	21	.04/18	.05/18	.05/18	.06/17	.07/17	.08/17	.08/17	.08/17	.08/17	.07/24	.06/24	.06/30	.05/30

ASR

SHORTCRESTED

RMS LAT ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.10/ 7	.13/ 7	.18/ 7	.23/ 7	.28/ 7	.30/ 7	.31/ 7	.30/ 7	.27/ 7	.23/ 7	.18/ 7	.12/ 7	.10/ 7
	9	.11/ 8	.13/ 8	.17/ 8	.22/ 8	.26/ 8	.28/ 8	.29/ 8	.28/ 8	.25/ 8	.22/ 8	.17/ 8	.13/ 8	.11/ 8
	11	.11/11	.13/11	.16/ 9	.20/ 9	.23/ 9	.25/ 9	.25/ 9	.25/10	.23/10	.20/10	.16/10	.13/10	.11/10
	13	.10/12	.12/12	.14/11	.17/11	.20/11	.21/11	.22/11	.21/11	.20/11	.17/11	.14/11	.12/11	.11/11
	15	.09/12	.10/12	.12/12	.15/12	.17/12	.18/12	.19/12	.18/12	.17/12	.15/12	.13/12	.10/12	.09/12
	17	.08/13	.09/13	.11/13	.13/13	.15/13	.16/13	.16/12	.16/12	.15/12	.13/12	.11/12	.09/13	.08/13
	19	.07/14	.08/13	.09/13	.11/13	.13/13	.14/13	.14/13	.14/13	.13/13	.11/13	.09/13	.08/13	.07/13
	21	.06/14	.07/14	.08/14	.10/14	.11/14	.12/14	.12/14	.12/14	.11/14	.10/14	.08/14	.07/14	.06/14
5	7	.12/ 7	.14/ 7	.19/ 7	.24/ 7	.28/ 7	.31/ 7	.31/ 7	.30/ 7	.27/ 7	.22/ 7	.17/ 7	.11/ 8	.09/ 8
	9	.13/ 8	.15/ 8	.19/ 8	.23/ 8	.26/ 8	.28/ 8	.29/ 8	.28/ 8	.25/ 8	.21/ 9	.16/10	.12/11	.10/11
	11	.12/10	.14/10	.17/10	.21/10	.23/10	.25/11	.26/11	.24/11	.22/11	.19/11	.15/11	.12/11	.10/11
	13	.11/13	.12/13	.15/12	.18/12	.20/11	.22/11	.22/11	.21/11	.19/11	.17/11	.14/11	.11/11	.10/11
	15	.10/13	.11/13	.13/13	.16/13	.18/13	.19/12	.19/12	.18/12	.17/12	.14/12	.12/12	.10/12	.09/13
	17	.09/13	.10/13	.11/13	.13/13	.15/13	.16/13	.16/13	.16/13	.14/13	.12/13	.10/13	.08/13	.08/13
	19	.08/13	.08/13	.10/13	.12/13	.13/13	.14/13	.14/13	.14/13	.12/13	.11/14	.09/14	.07/14	.07/14
	21	.07/14	.07/14	.09/14	.10/14	.11/14	.12/14	.12/14	.12/14	.11/14	.09/14	.08/14	.06/15	.06/15
10	7	.13/ 7	.15/ 7	.21/ 7	.25/ 7	.29/ 7	.31/ 7	.32/ 7	.30/ 7	.26/ 7	.22/ 7	.16/ 7	.11/11	.08/11
	9	.14/ 8	.16/ 8	.20/ 8	.24/ 8	.27/ 8	.29/ 8	.29/ 8	.28/ 9	.25/ 9	.21/11	.16/11	.12/12	.10/12
	11	.13/10	.15/10	.18/10	.22/10	.24/10	.26/10	.26/10	.24/11	.22/11	.18/11	.14/12	.11/12	.10/13
	13	.12/11	.13/11	.16/11	.19/11	.21/11	.22/11	.22/11	.21/12	.19/12	.16/12	.13/13	.10/13	.09/13
	15	.11/13	.12/13	.14/13	.16/13	.18/13	.19/13	.19/13	.18/13	.16/13	.14/13	.11/13	.09/14	.08/14
	17	.10/14	.10/14	.12/14	.14/13	.16/13	.16/13	.16/13	.16/13	.14/13	.12/14	.10/14	.08/15	.07/15
	19	.08/14	.09/14	.11/14	.12/14	.13/14	.14/14	.14/14	.13/14	.12/14	.10/14	.08/15	.07/15	.06/16
	21	.07/14	.08/14	.09/14	.11/14	.12/14	.12/14	.12/14	.12/14	.11/15	.09/15	.07/15	.06/16	.05/16
15	7	.14/ 7	.17/ 7	.22/ 7	.27/ 7	.30/ 7	.32/ 7	.32/ 7	.30/ 7	.26/ 7	.21/ 7	.15/10	.10/14	.07/14
	9	.15/ 8	.17/ 8	.21/ 8	.25/ 8	.28/ 8	.30/ 8	.30/ 8	.28/ 8	.25/10	.20/11	.15/14	.11/14	.09/14
	11	.15/10	.16/10	.19/10	.22/10	.25/10	.26/10	.26/10	.24/11	.22/11	.18/11	.14/14	.10/14	.09/14
	13	.13/11	.14/11	.17/11	.20/11	.22/11	.23/11	.22/11	.21/12	.19/12	.16/14	.12/14	.09/17	.08/17
	15	.12/13	.13/13	.15/13	.17/13	.19/13	.19/13	.19/13	.18/13	.16/14	.13/14	.11/14	.08/17	.07/17
	17	.10/14	.11/14	.13/14	.15/14	.16/13	.17/13	.17/14	.16/14	.14/14	.12/14	.09/17	.07/17	.06/17
	19	.09/14	.10/14	.11/14	.13/14	.14/14	.14/14	.14/14	.13/14	.12/14	.10/17	.08/17	.06/17	.06/17
	21	.08/16	.08/16	.10/14	.11/14	.12/14	.13/14	.12/14	.12/14	.10/14	.09/17	.07/17	.06/20	.05/20
20	7	.15/ 7	.18/ 7	.23/ 7	.28/ 7	.31/ 7	.33/ 7	.33/ 6	.31/13	.27/13	.21/13	.15/13	.10/13	.07/13
	9	.16/ 8	.18/ 8	.22/ 8	.26/ 8	.29/ 8	.31/ 8	.30/ 8	.28/13	.25/13	.20/13	.15/13	.10/13	.08/13
	11	.16/10	.17/10	.20/10	.23/10	.26/10	.27/10	.26/10	.25/13	.22/13	.18/13	.13/13	.10/19	.08/19
	13	.14/11	.15/11	.18/11	.20/11	.22/11	.23/11	.23/13	.21/13	.19/13	.15/13	.12/19	.09/19	.07/19
	15	.12/13	.13/13	.15/13	.17/13	.19/13	.20/13	.19/13	.18/13	.16/13	.13/19	.10/19	.08/19	.07/19
	17	.11/14	.11/14	.13/14	.15/13	.16/13	.17/13	.17/13	.16/13	.14/13	.11/19	.09/19	.07/23	.06/23
	19	.09/16	.10/16	.11/14	.13/14	.14/14	.15/13	.14/13	.13/13	.12/19	.10/19	.08/19	.06/23	.05/23
	21	.08/16	.09/16	.10/16	.11/16	.12/15	.13/14	.12/13	.12/19	.10/19	.09/19	.07/23	.05/23	.05/23
25	7	.16/ 7	.18/ 7	.24/ 7	.29/ 7	.32/ 7	.34/17	.33/17	.31/17	.27/17	.21/17	.15/17	.09/17	.06/17
	9	.17/ 8	.19/ 8	.23/ 8	.27/ 9	.30/ 9	.31/17	.31/17	.29/17	.25/17	.20/17	.14/17	.09/17	.07/17
	11	.16/10	.18/10	.21/10	.24/10	.26/10	.27/17	.27/17	.25/17	.21/17	.17/17	.13/17	.09/17	.07/17
	13	.15/10	.16/10	.18/10	.21/11	.23/11	.24/17	.23/17	.21/17	.18/17	.15/17	.11/17	.08/17	.06/17
	15	.13/13	.14/13	.16/13	.18/13	.19/13	.20/17	.20/17	.18/17	.16/17	.13/17	.10/17	.07/17	.06/17
	17	.11/14	.12/14	.14/14	.15/13	.17/17	.17/17	.17/17	.16/17	.14/17	.11/17	.08/17	.06/17	.05/17
	19	.10/16	.10/14	.12/14	.13/14	.14/17	.15/17	.14/17	.13/17	.12/17	.10/17	.07/17	.06/17	.05/17
	21	.08/16	.09/16	.10/16	.11/17	.12/17	.13/17	.13/17	.12/17	.10/17	.08/17	.07/17	.05/17	.04/17

ASR

SHORTCRESTED
RMS VER DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.11/ 8	.12/ 8	.14/ 8	.16/ 7	.18/ 7	.19/ 7	.19/ 7	.19/ 7	.18/ 7	.16/ 8	.14/ 8	.12/ 8	.11/ 8
	9	.17/10	.17/10	.18/10	.20/10	.21/ 9	.22/ 9	.22/ 9	.22/ 9	.21/ 9	.20/10	.18/10	.17/10	.17/10
	11	.20/11	.20/11	.21/11	.22/11	.23/11	.24/11	.24/11	.23/11	.23/11	.22/11	.21/11	.20/11	.20/11
	13	.22/13	.22/13	.23/13	.23/13	.24/13	.24/13	.24/13	.24/13	.24/13	.23/13	.23/13	.22/13	.22/13
	15	.23/16	.23/16	.24/16	.24/16	.24/16	.25/16	.25/16	.25/16	.24/16	.24/16	.23/16	.23/16	.23/16
	17	.24/18	.24/18	.24/18	.24/18	.24/18	.25/18	.25/18	.25/18	.24/18	.24/18	.24/18	.24/18	.24/18
	19	.24/18	.24/18	.24/18	.24/18	.25/18	.25/18	.25/18	.25/18	.25/18	.24/18	.24/18	.24/18	.24/18
	21	.24/21	.24/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.24/21	.24/21	.24/21
5	7	.14/ 7	.15/ 7	.17/ 7	.18/ 7	.20/ 7	.20/ 7	.20/ 7	.20/ 7	.19/ 8	.17/ 8	.15/ 9	.13/10	.11/10	.10/10
	9	.19/10	.19/10	.20/10	.21/10	.22/10	.23/10	.23/10	.22/10	.21/10	.19/10	.17/11	.16/11	.16/11
	11	.22/11	.22/11	.22/11	.23/11	.24/11	.24/11	.24/11	.23/12	.22/12	.21/13	.20/13	.20/13	.19/13
	13	.23/13	.23/13	.24/13	.24/13	.24/13	.25/13	.25/13	.24/14	.23/14	.23/14	.22/14	.21/14	.21/14
	15	.24/16	.24/16	.24/16	.25/16	.25/16	.25/16	.25/16	.24/16	.24/16	.23/16	.23/16	.23/17	.22/17
	17	.24/18	.24/18	.24/18	.25/18	.25/18	.25/18	.25/18	.25/18	.24/18	.24/18	.24/18	.23/18	.23/19
	19	.24/18	.25/18	.25/18	.25/18	.25/18	.25/18	.25/19	.25/19	.24/20	.24/20	.24/20	.24/20	.24/20
	21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/22	.24/22	.24/22	.24/22	.24/22
10	7	.19/ 7	.19/ 7	.20/ 7	.21/ 7	.22/ 7	.22/ 7	.21/ 7	.20/ 7	.18/ 8	.15/13	.12/13	.11/13	.10/13
	9	.23/ 8	.23/ 8	.24/ 9	.24/ 9	.25/ 9	.24/10	.24/10	.22/10	.21/12	.19/14	.17/14	.16/14	.15/14
	11	.24/11	.25/11	.25/11	.25/11	.25/11	.25/12	.25/12	.24/13	.22/14	.21/14	.20/15	.19/15	.18/15
	13	.25/13	.25/13	.25/13	.25/13	.25/13	.25/14	.25/14	.24/14	.23/15	.22/16	.21/16	.21/17	.21/17
	15	.25/16	.25/16	.25/16	.26/16	.26/16	.25/16	.25/16	.24/16	.24/17	.23/17	.23/18	.22/18	.22/18
	17	.25/18	.25/18	.25/18	.25/18	.25/18	.25/18	.25/18	.25/18	.24/18	.24/20	.23/20	.23/20	.23/20
	19	.25/18	.25/18	.25/18	.25/18	.25/18	.25/19	.25/20	.25/21	.24/21	.24/21	.24/22	.23/22	.23/22
	21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/21	.25/22	.25/22	.24/23	.24/24	.24/24	.24/24
15	7	.22/ 8	.22/ 8	.23/ 8	.23/ 7	.24/ 7	.23/ 7	.22/ 7	.20/ 7	.18/14	.15/14	.12/14	.10/14	.09/17
	9	.28/ 8	.28/ 8	.28/ 8	.28/ 8	.27/ 8	.26/ 9	.25/10	.23/10	.21/17	.18/17	.16/17	.15/17	.14/17
	11	.28/11	.28/11	.28/11	.28/11	.27/11	.26/12	.25/12	.24/14	.22/17	.20/20	.19/20	.18/20	.18/20
	13	.28/13	.28/13	.27/13	.27/13	.27/14	.26/14	.25/14	.24/17	.23/20	.22/20	.21/20	.20/20	.20/20
	15	.27/16	.27/16	.27/16	.27/16	.26/16	.26/16	.25/16	.25/17	.24/20	.23/20	.22/20	.22/20	.22/20
	17	.27/18	.27/18	.26/18	.26/18	.26/18	.26/18	.25/18	.25/20	.24/20	.23/20	.23/22	.23/22	.22/22
	19	.26/18	.26/18	.26/18	.26/18	.26/19	.25/20	.25/21	.25/21	.24/22	.24/22	.23/23	.23/24	.23/24
	21	.26/21	.26/21	.26/21	.26/21	.26/21	.25/21	.25/21	.25/22	.24/24	.24/25	.24/25	.24/25	.24/26
20	7	.23/ 8	.23/ 8	.24/ 8	.25/ 8	.25/ 8	.24/ 7	.23/13	.21/13	.18/13	.15/13	.12/13	.10/13	.09/13
	9	.31/ 8	.31/ 8	.31/ 8	.30/ 8	.29/ 8	.28/ 8	.26/13	.23/19	.21/19	.18/19	.16/19	.15/23	.14/23
	11	.32/ 8	.32/ 8	.31/ 8	.30/ 8	.29/11	.28/11	.26/13	.24/19	.22/23	.20/23	.19/23	.18/23	.18/23
	13	.30/13	.30/13	.30/13	.29/13	.28/13	.27/13	.26/13	.24/23	.23/23	.22/23	.21/23	.20/26	.20/26
	15	.29/16	.29/16	.29/16	.28/16	.28/16	.27/16	.26/19	.25/23	.24/23	.23/26	.22/26	.21/26	.21/26
	17	.28/18	.28/18	.28/18	.27/18	.27/18	.26/19	.25/19	.25/23	.24/23	.23/26	.23/26	.22/26	.22/26
	19	.27/18	.27/18	.27/18	.27/18	.26/20	.26/21	.25/21	.25/23	.24/26	.24/27	.23/27	.23/27	.23/27
	21	.27/21	.27/21	.27/21	.26/21	.26/21	.26/21	.25/23	.25/23	.24/27	.24/27	.24/27	.24/27	.23/27
25	7	.23/ 8	.24/ 8	.25/ 8	.25/ 8	.26/ 8	.25/17	.24/17	.21/17	.18/17	.15/17	.12/17	.10/17	.09/17
	9	.34/ 9	.34/ 8	.34/ 8	.33/ 8	.32/ 8	.30/17	.27/17	.24/17	.21/17	.18/17	.16/17	.14/17	.14/17
	11	.35/ 9	.35/ 9	.34/ 9	.33/ 9	.31/ 9	.29/17	.27/17	.25/17	.22/17	.20/17	.19/17	.18/33	.17/33
	13	.33/ 9	.33/ 9	.32/ 9	.31/13	.30/13	.28/17	.26/17	.25/17	.23/17	.22/33	.21/33	.20/33	.20/33
	15	.31/16	.31/16	.31/16	.30/16	.29/17	.27/17	.26/17	.25/17	.24/33	.23/33	.22/33	.21/33	.21/33
	17	.30/18	.30/18	.29/18	.28/18	.28/18	.27/17	.26/17	.25/24	.24/33	.23/33	.23/33	.22/33	.22/33
	19	.28/18	.28/18	.28/18	.28/18	.27/20	.26/21	.25/24	.25/24	.24/33	.24/33	.23/33	.23/33	.23/33
	21	.28/21	.28/21	.27/21	.27/21	.27/21	.26/21	.25/24	.25/24	.24/33	.24/33	.24/33	.23/33	.23/33

ASR

SHORTCRESTED

RMS VER VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.10/ 8	.11/ 7	.13/ 7	.16/ 7	.18/ 7	.19/ 7	.19/ 7	.19/ 7	.17/ 7	.15/ 7	.12/ 7	.10/ 7	.10/ 8
	9	.12/ 9	.13/ 9	.14/ 9	.16/ 9	.17/ 8	.18/ 8	.18/ 8	.18/ 8	.17/ 8	.15/ 9	.14/ 9	.12/ 9	.12/ 9
	11	.13/10	.13/10	.14/10	.15/10	.16/10	.16/10	.17/10	.16/10	.16/10	.15/10	.14/10	.13/10	.13/10
	13	.12/12	.13/12	.13/12	.14/12	.14/12	.15/11	.15/11	.15/11	.14/12	.14/12	.13/12	.12/12	.12/12
	15	.12/14	.12/14	.12/14	.13/13	.13/13	.13/13	.13/13	.13/13	.13/13	.13/13	.12/14	.12/14	.12/14
	17	.11/16	.11/16	.11/16	.11/16	.12/16	.12/16	.12/14	.12/16	.12/16	.11/16	.11/16	.11/16	.11/16
	19	.10/16	.10/16	.10/16	.11/16	.11/16	.11/16	.11/16	.11/16	.11/16	.11/16	.10/16	.10/16	.10/16
	21	.09/18	.09/18	.10/18	.10/18	.10/18	.10/18	.10/18	.10/18	.10/18	.10/18	.10/18	.09/18	.09/18
5	7	.15/ 7	.16/ 7	.17/ 7	.19/ 7	.20/ 6	.21/ 6	.20/ 6	.19/ 6	.17/ 6	.14/ 7	.11/ 9	.08/ 9	.07/10
	9	.17/ 9	.17/ 9	.18/ 8	.19/ 8	.20/ 8	.20/ 8	.19/ 9	.18/ 9	.16/ 9	.14/10	.12/10	.10/10	.10/11
	11	.18/10	.16/10	.17/10	.17/10	.18/10	.18/10	.17/10	.16/10	.15/11	.13/11	.12/12	.11/12	.10/12
	13	.15/12	.15/12	.16/12	.16/12	.16/12	.16/12	.15/12	.14/12	.13/13	.12/13	.11/13	.11/13	.10/13
	15	.14/13	.14/13	.14/13	.14/13	.14/13	.14/13	.14/14	.13/14	.12/14	.11/14	.11/15	.10/15	.10/15
	17	.13/16	.13/16	.13/16	.13/15	.13/15	.13/15	.12/16	.12/16	.11/16	.10/16	.10/16	.09/17	.09/17
	19	.12/16	.12/16	.12/16	.12/16	.12/16	.11/16	.11/17	.11/17	.10/17	.10/18	.09/18	.09/18	.09/18
	21	.11/18	.11/18	.11/18	.11/18	.11/18	.10/18	.10/18	.10/18	.09/19	.09/20	.09/20	.08/20	.08/20
10	7	.22/ 7	.23/ 7	.24/ 7	.24/ 7	.24/ 7	.24/ 7	.22/ 7	.20/ 6	.17/ 6	.13/ 6	.10/13	.07/13	.06/13
	9	.24/ 7	.24/ 7	.24/ 7	.24/ 7	.24/ 7	.23/ 7	.21/ 7	.19/ 8	.16/ 9	.13/10	.10/13	.08/14	.08/14
	11	.22/ 7	.22/ 7	.22/ 7	.22/10	.21/10	.20/10	.18/10	.17/10	.14/12	.12/14	.10/14	.09/14	.08/14
	13	.20/12	.20/12	.19/12	.19/11	.18/12	.17/12	.16/13	.15/13	.13/14	.11/15	.10/15	.09/16	.09/16
	15	.17/13	.17/13	.17/13	.17/13	.16/13	.15/14	.14/14	.13/14	.12/15	.10/16	.09/17	.09/17	.08/17
	17	.15/14	.15/14	.15/14	.15/14	.14/15	.14/16	.13/16	.12/16	.11/17	.10/17	.09/18	.08/18	.08/18
	19	.14/16	.14/16	.14/16	.13/16	.13/16	.12/17	.11/18	.11/18	.10/18	.09/19	.08/20	.08/20	.08/20
	21	.12/18	.12/18	.12/18	.12/18	.12/18	.11/18	.10/18	.10/20	.09/20	.08/21	.08/22	.07/22	.07/22
15	7	.28/ 7	.28/ 7	.28/ 7	.29/ 7	.28/ 7	.27/ 7	.24/ 7	.21/ 7	.17/ 7	.13/ 6	.09/14	.06/14	.04/14
	9	.32/ 8	.32/ 8	.31/ 8	.30/ 8	.29/ 8	.26/ 7	.23/ 7	.20/ 7	.16/ 7	.12/10	.09/17	.07/17	.06/17
	11	.29/ 8	.29/ 8	.28/ 8	.27/ 8	.25/ 8	.23/ 8	.20/ 8	.17/10	.14/11	.11/17	.09/17	.07/20	.07/20
	13	.25/ 8	.25/ 8	.24/ 8	.23/ 8	.22/11	.20/12	.18/12	.15/13	.13/14	.10/20	.09/20	.07/20	.07/20
	15	.22/ 8	.21/ 8	.21/13	.20/13	.19/13	.17/14	.15/14	.13/14	.11/17	.10/20	.08/20	.07/20	.07/20
	17	.19/14	.19/14	.18/14	.17/14	.16/15	.15/16	.14/16	.12/17	.10/20	.09/20	.08/20	.07/20	.07/20
	19	.16/16	.16/16	.16/16	.15/16	.14/16	.13/17	.12/18	.11/18	.09/20	.08/20	.07/22	.07/22	.07/22
	21	.15/18	.14/18	.14/18	.14/18	.13/18	.12/18	.11/20	.10/21	.09/21	.08/22	.07/23	.07/24	.06/24
20	7	.31/ 8	.31/ 8	.32/ 8	.32/ 8	.31/ 8	.29/ 7	.26/ 7	.22/ 7	.18/ 7	.13/13	.08/13	.05/13	.03/13
	9	.39/ 8	.39/ 8	.38/ 8	.36/ 8	.33/ 8	.30/ 8	.26/ 8	.21/ 7	.17/ 7	.12/13	.08/13	.05/19	.04/19
	11	.36/ 8	.35/ 8	.34/ 8	.32/ 8	.30/ 8	.26/ 8	.23/ 8	.19/ 8	.15/13	.11/19	.08/23	.06/23	.05/23
	13	.31/ 8	.30/ 8	.29/ 8	.28/ 8	.25/ 8	.22/ 8	.19/ 8	.16/13	.13/13	.10/23	.08/23	.06/23	.06/23
	15	.26/ 8	.26/ 8	.25/ 8	.24/ 8	.22/ 8	.19/13	.17/13	.14/13	.11/19	.09/23	.07/23	.06/26	.06/26
	17	.22/ 8	.22/ 8	.21/ 8	.20/14	.19/14	.17/16	.14/16	.12/19	.10/19	.08/23	.07/26	.06/26	.06/26
	19	.19/16	.19/16	.19/16	.18/16	.16/16	.15/17	.13/19	.11/19	.09/23	.08/26	.07/26	.06/26	.06/27
	21	.17/18	.17/18	.16/18	.15/18	.14/18	.13/19	.11/19	.10/23	.09/23	.07/26	.06/27	.06/27	.06/27
25	7	.32/ 8	.33/ 8	.33/ 8	.34/ 8	.33/ 8	.31/ 7	.28/ 7	.24/ 7	.18/ 6	.13/17	.08/17	.04/17	.03/17
	9	.45/ 8	.45/ 8	.43/ 8	.41/ 8	.38/ 8	.34/ 8	.29/ 8	.23/ 8	.17/17	.12/17	.08/17	.05/17	.03/17
	11	.43/ 8	.42/ 8	.41/ 8	.38/ 8	.34/ 8	.30/ 8	.25/ 8	.20/ 8	.15/17	.11/17	.07/17	.05/17	.04/17
	13	.37/ 9	.36/ 9	.35/ 9	.32/ 9	.29/ 8	.25/ 8	.21/ 8	.17/17	.13/17	.10/17	.07/17	.05/33	.05/33
	15	.31/ 9	.31/ 9	.29/ 9	.27/ 9	.25/ 8	.22/ 8	.18/17	.15/17	.11/17	.09/17	.07/33	.05/33	.05/33
	17	.26/ 9	.26/ 9	.25/ 9	.23/ 9	.21/ 8	.18/17	.16/17	.13/17	.10/17	.08/33	.06/33	.05/33	.05/33
	19	.23/ 9	.22/ 9	.21/ 9	.20/ 9	.18/17	.16/17	.14/17	.11/17	.09/17	.07/33	.06/33	.05/33	.05/33
	21	.20/ 9	.19/ 9	.19/ 9	.18/18	.16/18	.14/18	.12/18	.10/20	.08/24	.07/33	.06/33	.05/33	.05/33

ASR

SHORTCRESTED

RMS VER ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{DE}, IN SECONDS

(ACC. X 100)

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.30/ 7	.34/ 7	.42/ 5	.51/ 5	.58/ 5	.62/ 6	.63/ 6	.61/ 6	.55/ 6	.47/ 6	.38/ 7	.31/ 7	.27/ 7
	9	.30/ 8	.33/ 8	.38/ 8	.43/ 8	.48/ 7	.51/ 7	.52/ 7	.51/ 7	.47/ 7	.42/ 8	.36/ 8	.31/ 8	.29/ 8
	11	.28/10	.29/10	.32/ 9	.36/ 9	.39/ 9	.41/ 8	.42/ 8	.41/ 8	.39/ 9	.35/ 9	.31/ 9	.28/ 9	.27/10
	13	.24/10	.25/10	.27/10	.30/10	.32/10	.34/10	.34/10	.33/10	.32/10	.29/10	.27/10	.25/10	.24/10
	15	.21/11	.22/11	.23/11	.25/10	.27/10	.28/10	.28/10	.28/10	.26/10	.25/10	.23/11	.21/11	.21/11
	17	.18/13	.19/13	.20/13	.21/12	.22/12	.23/11	.23/11	.23/11	.22/12	.21/12	.19/13	.18/13	.18/13
	19	.16/13	.16/13	.17/13	.18/13	.19/13	.20/13	.20/13	.19/13	.19/13	.18/13	.17/13	.16/13	.16/13
	21	.14/14	.14/14	.15/14	.15/14	.16/14	.17/14	.17/14	.17/14	.16/14	.15/14	.14/14	.14/14	.14/14
5	7	.52/ 7	.55/ 7	.61/ 6	.66/ 6	.70/ 6	.71/ 6	.69/ 6	.63/ 6	.54/ 6	.43/ 6	.31/ 6	.22/ 9	.18/ 9
	9	.50/ 7	.52/ 7	.55/ 7	.58/ 7	.60/ 6	.60/ 6	.57/ 6	.52/ 6	.45/ 6	.36/ 9	.28/10	.22/10	.19/10
	11	.43/ 9	.44/ 9	.46/ 9	.48/ 8	.48/ 8	.48/ 8	.45/ 9	.41/ 9	.36/10	.30/10	.24/11	.20/11	.19/11
	13	.36/10	.37/10	.38/10	.39/10	.39/10	.38/10	.36/10	.33/10	.29/10	.25/11	.21/12	.18/12	.17/12
	15	.30/10	.31/10	.31/10	.32/10	.32/10	.31/10	.30/10	.27/11	.24/12	.21/13	.18/13	.16/13	.15/13
	17	.26/12	.26/12	.26/12	.27/11	.27/11	.26/11	.25/12	.23/12	.20/13	.18/13	.15/14	.14/14	.13/14
	19	.22/13	.22/13	.22/13	.23/13	.22/13	.22/13	.21/13	.19/13	.17/14	.15/14	.13/15	.12/15	.12/16
	21	.19/14	.19/14	.19/14	.19/14	.19/14	.19/14	.18/14	.16/14	.15/15	.13/16	.12/16	.11/17	.10/17
10	7	.85/ 7	.86/ 7	.89/ 7	.91/ 7	.91/ 7	.87/ 6	.80/ 6	.69/ 6	.56/ 6	.42/ 6	.28/ 6	.17/ 8	.12/13
	9	.84/ 7	.84/ 7	.84/ 7	.83/ 7	.80/ 7	.75/ 7	.67/ 7	.57/ 6	.46/ 6	.35/ 6	.24/ 9	.16/13	.13/13
	11	.70/ 7	.70/ 7	.70/ 7	.68/ 7	.65/ 7	.60/ 7	.53/ 7	.45/ 7	.37/ 6	.28/10	.20/14	.15/14	.13/14
	13	.57/ 7	.57/ 7	.56/ 7	.55/ 7	.52/ 7	.48/ 7	.42/ 7	.36/ 7	.29/10	.23/13	.17/14	.13/15	.12/15
	15	.47/ 7	.46/ 7	.46/ 7	.44/ 7	.42/ 7	.39/ 7	.34/ 7	.29/11	.24/13	.19/14	.15/15	.12/16	.11/16
	17	.38/ 7	.38/ 7	.38/ 7	.36/ 7	.34/ 7	.32/ 7	.28/12	.24/13	.20/14	.16/15	.13/16	.11/17	.10/17
	19	.32/ 7	.32/ 7	.31/ 7	.30/ 7	.29/ 7	.26/ 7	.24/13	.20/14	.17/15	.14/16	.11/17	.09/18	.09/18
	21	.27/ 7	.27/ 7	.27/ 7	.26/ 7	.24/ 7	.22/13	.20/14	.17/16	.14/16	.12/18	.10/18	.08/19	.08/19
15	7	1.13/ 7	1.14/ 7	1.15/ 7	1.14/ 7	1.11/ 7	1.03/ 7	.92/ 7	.77/ 6	.60/ 6	.43/ 6	.27/ 6	.14/10	.08/14
	9	1.21/ 8	1.20/ 8	1.18/ 8	1.13/ 7	1.05/ 7	.94/ 7	.81/ 7	.66/ 7	.50/ 7	.35/ 6	.22/ 6	.13/14	.09/14
	11	1.03/ 8	1.02/ 8	.99/ 8	.93/ 8	.86/ 7	.76/ 7	.65/ 7	.52/ 7	.40/ 7	.28/ 6	.18/11	.11/17	.09/17
	13	.83/ 8	.82/ 8	.79/ 8	.75/ 8	.68/ 8	.60/ 7	.51/ 7	.41/ 7	.31/ 7	.22/11	.15/17	.10/20	.08/20
	15	.67/ 8	.66/ 8	.64/ 8	.60/ 8	.55/ 8	.48/ 7	.41/ 7	.33/ 7	.25/ 7	.18/14	.13/20	.09/20	.08/20
	17	.55/ 8	.54/ 8	.52/ 8	.49/ 8	.45/ 8	.39/ 7	.33/ 7	.27/ 7	.21/14	.15/17	.11/20	.08/20	.07/20
	19	.45/ 8	.45/ 8	.43/ 8	.41/ 8	.37/ 8	.33/ 7	.28/ 7	.23/ 7	.18/14	.13/20	.09/20	.07/20	.07/20
	21	.38/ 8	.38/ 8	.36/ 8	.34/ 8	.31/ 8	.27/ 7	.23/ 7	.19/ 7	.15/17	.11/20	.08/20	.07/20	.06/20
20	7	1.32/ 8	1.33/ 8	1.33/ 8	1.32/ 8	1.27/ 7	1.18/ 7	1.04/ 7	.86/ 7	.66/ 7	.45/ 6	.26/ 6	.12/13	.06/13
	9	1.57/ 8	1.55/ 8	1.50/ 8	1.42/ 8	1.30/ 8	1.14/ 8	.96/ 7	.76/ 7	.56/ 7	.37/ 6	.21/ 6	.10/13	.06/13
	11	1.37/ 8	1.35/ 8	1.30/ 8	1.21/ 8	1.09/ 8	.94/ 8	.78/ 8	.61/ 7	.44/ 7	.29/ 7	.17/13	.09/19	.06/19
	13	1.11/ 8	1.10/ 8	1.05/ 8	.97/ 8	.87/ 8	.75/ 8	.61/ 8	.48/ 7	.35/ 7	.23/ 7	.14/13	.08/23	.06/23
	15	.90/ 8	.89/ 8	.85/ 8	.78/ 8	.70/ 8	.60/ 8	.49/ 8	.38/ 7	.28/ 7	.19/13	.12/23	.07/23	.06/23
	17	.73/ 8	.72/ 8	.69/ 8	.64/ 8	.57/ 8	.49/ 8	.40/ 8	.31/ 7	.23/ 7	.15/13	.10/23	.06/26	.05/26
	19	.60/ 8	.60/ 8	.57/ 8	.52/ 8	.47/ 8	.40/ 8	.33/ 8	.26/ 7	.19/ 7	.13/19	.09/26	.06/26	.05/26
	21	.51/ 8	.50/ 8	.48/ 8	.44/ 8	.39/ 8	.34/ 8	.28/ 8	.22/ 7	.16/ 7	.11/23	.07/26	.05/26	.05/26
25	7	1.45/ 8	1.46/ 8	1.47/ 8	1.46/ 8	1.41/ 8	1.31/ 7	1.15/ 7	.95/ 7	.72/ 6	.49/ 6	.27/ 6	.12/17	.05/17
	9	1.90/ 8	1.88/ 8	1.82/ 8	1.71/ 8	1.55/ 8	1.35/ 8	1.12/ 8	.88/ 7	.63/ 7	.40/ 6	.22/ 6	.09/17	.05/17
	11	1.72/ 8	1.70/ 8	1.62/ 8	1.50/ 8	1.33/ 8	1.14/ 8	.93/ 8	.71/ 8	.50/ 7	.32/ 7	.17/17	.08/17	.05/17
	13	1.42/ 8	1.39/ 8	1.33/ 8	1.22/ 8	1.08/ 8	.91/ 8	.74/ 8	.56/ 8	.39/ 7	.25/ 7	.14/17	.07/17	.04/17
	15	1.15/ 8	1.13/ 8	1.07/ 8	.98/ 8	.87/ 8	.73/ 8	.59/ 8	.44/ 8	.31/ 7	.20/ 7	.11/17	.06/17	.04/33
	17	.93/ 8	.92/ 8	.87/ 8	.80/ 8	.70/ 8	.59/ 8	.48/ 8	.36/ 8	.25/ 7	.16/17	.09/17	.05/33	.04/33
	19	.77/ 8	.76/ 8	.72/ 8	.66/ 8	.58/ 8	.49/ 8	.39/ 8	.30/ 8	.21/ 7	.14/17	.08/33	.05/33	.04/33
	21	.64/ 8	.63/ 8	.60/ 8	.55/ 8	.48/ 8	.41/ 8	.33/ 8	.25/ 8	.18/ 7	.12/17	.07/33	.04/33	.04/33

ASR

SHORTCRESTED

RMS ROLL IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.16/10	.16/10	.17/10	.18/10	.20/10	.20/10	.20/10	.20/10	.19/10	.18/10	.16/10	.15/10	.15/10
	9	.32/10	.33/10	.35/10	.38/10	.41/10	.42/10	.43/10	.42/10	.40/10	.38/10	.35/10	.33/10	.32/10
	11	.38/10	.39/10	.42/10	.45/10	.48/10	.50/10	.51/10	.50/10	.48/10	.45/10	.41/10	.39/10	.38/10
	13	.35/10	.36/10	.38/10	.42/10	.45/10	.47/10	.47/10	.47/10	.45/10	.41/10	.38/10	.36/10	.35/10
	15	.30/10	.31/10	.33/10	.36/10	.38/10	.40/10	.41/10	.40/10	.38/10	.35/10	.33/10	.30/10	.29/10
	17	.25/10	.25/10	.27/10	.30/10	.32/10	.33/10	.34/10	.33/10	.32/10	.30/10	.27/10	.25/10	.25/10
	19	.21/10	.21/10	.23/10	.25/10	.27/10	.28/10	.28/10	.28/10	.27/10	.25/10	.23/10	.21/10	.20/10
	21	.17/10	.18/10	.19/10	.21/10	.23/10	.24/10	.24/10	.24/10	.22/10	.21/10	.19/10	.18/10	.17/10
8	7	.09/ 8	.10/ 8	.11/ 9	.14/10	.18/10	.23/10	.28/10	.33/10	.36/10	.38/10	.40/10	.41/10	.41/10
	9	.22/11	.23/11	.27/11	.32/10	.38/10	.44/10	.51/10	.55/10	.58/10	.59/10	.59/10	.58/10	.58/10
	11	.32/11	.33/11	.37/11	.42/11	.48/11	.53/10	.57/10	.59/10	.60/10	.58/10	.57/10	.55/10	.54/10
	13	.33/12	.34/11	.37/11	.41/11	.46/11	.49/11	.52/10	.53/10	.52/10	.50/10	.48/10	.46/10	.45/10
	15	.29/12	.30/12	.33/11	.36/11	.40/11	.43/11	.44/10	.44/10	.43/10	.41/10	.39/10	.37/10	.36/10
	17	.25/12	.26/12	.28/11	.31/11	.34/11	.36/11	.37/11	.37/10	.36/10	.34/10	.32/10	.30/10	.29/10
	19	.21/12	.22/12	.24/11	.26/11	.28/11	.30/11	.31/11	.31/10	.30/10	.28/10	.26/10	.25/10	.24/10
	21	.18/12	.18/12	.20/11	.22/11	.24/11	.25/11	.26/11	.26/10	.25/10	.23/10	.22/10	.20/10	.20/10
10	7	.06/ 8	.07/ 8	.09/ 9	.13/10	.23/10	.35/10	.47/10	.56/10	.61/10	.64/10	.64/12	.64/12	.64/12
	9	.12/12	.13/11	.17/10	.22/10	.31/10	.41/10	.51/10	.58/10	.61/10	.62/10	.61/10	.59/12	.58/12
	11	.18/13	.20/13	.23/13	.29/11	.35/10	.42/10	48/10	.52/10	.53/10	.52/10	.50/10	.47/12	.46/12
	13	.21/13	.22/13	.25/13	.29/13	.34/11	.38/10	.42/10	.44/10	.44/10	.42/10	.39/10	.37/12	.36/12
	15	.19/13	.20/13	.23/13	.26/13	.30/11	.33/11	.35/10	.36/10	.36/10	.34/10	.31/10	.29/12	.28/12
	17	.17/13	.18/13	.20/13	.23/13	.25/13	.28/11	.29/11	.30/10	.29/10	.28/10	.25/10	.23/12	.23/12
	19	.15/13	.16/13	.17/13	.19/13	.22/13	.23/11	.25/11	.25/10	.24/10	.23/10	.21/10	.19/12	.18/12
	21	.13/13	.13/13	.15/13	.17/13	.18/13	.20/11	.21/11	.21/10	.20/10	.19/10	.17/10	.16/12	.15/12
15	7	.04/ 8	.05/ 8	.07/ 9	.15/10	.26/10	.36/10	.44/10	.49/10	.50/10	.49/10	.44/10	.40/10	.38/10
	9	.07/11	.08/10	.11/10	.18/10	.27/10	.35/10	.41/10	.44/10	.45/10	.43/10	.39/10	.35/10	.33/10
	11	.12/13	.13/13	.16/12	.21/10	.27/10	.32/10	.36/10	.38/10	.38/10	.36/10	.32/10	.28/10	.26/14
	13	.15/14	.15/14	.18/13	.21/12	.25/11	.29/10	.31/10	.32/10	.32/10	.29/10	.26/10	.22/10	.20/14
	15	.15/14	.16/14	.17/14	.20/13	.23/11	.25/11	.27/10	.27/10	.26/10	.24/10	.21/10	.18/14	.16/14
	17	.14/14	.14/14	.16/14	.18/14	.20/13	.21/11	.22/11	.22/10	.21/10	.19/10	.17/10	.14/14	.13/14
	19	.12/14	.13/14	.14/14	.15/14	.17/13	.18/11	.19/11	.19/10	.18/10	.16/10	.14/10	.12/14	.11/14
	21	.11/14	.11/14	.12/14	.13/14	.15/13	.16/11	.16/11	.16/10	.15/10	.14/10	.12/10	.10/14	.09/14
20	7	.03/ 8	.04/ 8	.07/10	.13/13	.21/13	.27/13	.32/13	.36/13	.37/13	.36/13	.34/13	.31/13	.29/13
	9	.06/11	.07/10	.10/10	.16/13	.23/13	.28/13	.32/13	.34/13	.35/13	.33/13	.30/13	.26/13	.24/13
	11	.09/14	.10/13	.13/11	.18/11	.23/13	.27/13	.30/13	.31/13	.30/13	.28/13	.25/13	.21/13	.19/13
	13	.12/14	.13/14	.15/14	.18/13	.22/13	.25/13	.26/13	.27/13	.26/13	.23/13	.20/13	.17/13	.15/13
	15	.13/14	.13/14	.15/14	.17/13	.20/13	.22/13	.23/13	.23/13	.21/13	.19/13	.16/13	.14/13	.12/13
	17	.12/14	.12/14	.14/14	.16/13	.18/13	.19/13	.19/13	.19/13	.18/13	.16/13	.14/13	.11/13	.10/13
	19	.11/14	.11/14	.12/14	.14/14	.15/13	.16/13	.17/13	.16/13	.15/13	.13/13	.11/13	.09/13	.08/13
	21	.10/14	.10/14	.11/14	.12/14	.13/13	.14/13	.14/13	.14/13	.13/13	.11/13	.10/13	.08/13	.07/13
25	7	.03/ 8	.03/ 8	.08/ 9	.15/ 9	.22/ 9	.28/ 9	.31/17	.33/17	.33/17	.31/17	.27/17	.22/17	.19/17
	9	.04/11	.05/10	.10/10	.16/10	.22/17	.27/17	.30/17	.32/17	.31/17	.29/17	.25/17	.20/17	.18/17
	11	.07/13	.08/13	.11/11	.16/11	.21/17	.25/17	.27/17	.28/17	.27/17	.25/17	.21/17	.17/17	.15/17
	13	.09/14	.10/14	.13/13	.16/11	.20/17	.23/17	.24/17	.24/17	.23/17	.21/17	.17/17	.14/17	.12/17
	15	.10/16	.11/16	.13/14	.16/14	.18/17	.20/17	.21/17	.21/17	.19/17	.17/17	.14/17	.11/17	.10/17
	17	.10/16	.11/16	.12/16	.14/14	.16/17	.17/17	.18/17	.17/17	.16/17	.14/17	.12/17	.09/17	.08/17
	19	.09/16	.10/16	.11/16	.13/16	.14/17	.15/17	.15/17	.15/17	.14/17	.12/17	.10/17	.08/17	.07/17
	21	.08/16	.09/16	.10/16	.11/16	.12/17	.13/17	.13/17	.13/17	.12/17	.10/17	.08/17	.07/17	.06/17

ASR

SHORTCRESTED

RMS ROLL VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.13/ 8	.13/ 8	.14/ 8	.15/ 8	.16/ 8	.17/ 8	.17/ 8	.17/ 8	.16/ 8	.15/ 8	.13/ 8	.12/ 8	.12/ 8
	9	.21/10	.22/10	.23/10	.25/10	.27/10	.28/10	.28/10	.28/10	.27/10	.25/10	.23/10	.21/10	.21/10
	11	.24/10	.24/10	.26/10	.28/10	.30/10	.31/10	.32/10	.31/10	.30/10	.28/10	.26/10	.24/10	.23/10
	13	.21/10	.22/10	.24/10	.25/10	.27/10	.28/10	.29/10	.28/10	.27/10	.25/10	.23/10	.22/10	.21/10
	15	.18/10	.18/10	.20/10	.21/10	.23/10	.24/10	.24/10	.24/10	.23/10	.21/10	.20/10	.18/10	.18/10
	17	.15/10	.15/10	.16/10	.18/10	.19/10	.20/10	.20/10	.20/10	.19/10	.18/10	.16/10	.15/10	.15/10
	19	.12/10	.13/10	.14/10	.15/10	.16/10	.17/10	.17/10	.17/10	.16/10	.15/10	.14/10	.13/10	.12/10
	21	.10/10	.11/10	.11/10	.12/10	.13/10	.14/10	.14/10	.14/10	.13/10	.12/10	.11/10	.11/10	.10/10
5	7	.09/ 7	.10/ 7	.11/ 7	.13/ 8	.15/10	.18/10	.21/10	.24/10	.25/10	.26/10	.27/10	.27/10	.27/10
	9	.15/11	.16/11	.18/11	.21/10	.25/10	.29/10	.33/10	.35/10	.37/10	.37/10	.37/10	.36/10	.36/10
	11	.20/11	.21/11	.23/11	.26/11	.30/10	.33/10	.35/10	.36/10	.37/10	.36/10	.35/10	.33/10	.33/10
	13	.20/11	.21/11	.23/11	.25/11	.28/11	.30/10	.31/10	.32/10	.31/10	.30/10	.29/10	.28/10	.27/10
	15	.18/12	.18/11	.20/11	.22/11	.24/11	.26/11	.27/10	.27/10	.26/10	.25/10	.23/10	.22/10	.22/10
	17	.15/12	.16/12	.17/11	.19/11	.20/11	.21/11	.22/10	.22/10	.21/10	.20/10	.19/10	.18/10	.17/10
	19	.13/12	.13/12	.14/11	.16/11	.17/11	.18/11	.18/10	.18/10	.17/10	.17/10	.15/10	.15/10	.14/10
	21	.11/12	.11/12	.12/11	.13/11	.14/11	.15/11	.15/10	.15/10	.15/10	.14/10	.13/10	.12/10	.12/10
10	7	.07/ 7	.08/ 7	.09/ 7	.12/10	.17/10	.24/10	.30/10	.35/10	.38/10	.39/10	.39/10	.38/10	.38/10
	9	.10/11	.10/11	.12/10	.16/10	.21/10	.27/10	.32/10	.36/10	.37/10	.37/10	.36/10	.35/10	.34/10
	11	.13/13	.13/13	.15/12	.18/11	.22/10	.26/10	.29/10	.31/10	.32/10	.31/10	.29/10	.27/10	.27/10
	13	.13/13	.14/13	.16/13	.18/12	.21/11	.23/10	.25/10	.26/10	.26/10	.25/10	.23/10	.21/10	.21/10
	15	.12/13	.13/13	.14/13	.16/13	.18/11	.20/10	.21/10	.21/10	.21/10	.20/10	.18/10	.17/10	.16/10
	17	.11/13	.11/13	.12/13	.14/13	.15/11	.16/11	.17/10	.18/10	.17/10	.16/10	.14/10	.13/10	.13/10
	19	.09/13	.09/13	.10/13	.11/13	.13/11	.14/11	.14/10	.14/10	.14/10	.13/10	.12/10	.11/10	.10/10
	21	.08/13	.08/13	.09/13	.10/13	.11/13	.12/11	.12/10	.12/10	.12/10	.11/10	.10/10	.09/10	.09/10
15	7	.06/ 7	.06/ 7	.08/ 8	.12/10	.18/10	.23/10	.27/10	.30/10	.30/10	.29/10	.26/10	.23/10	.21/10
	9	.07/10	.08/10	.09/10	.13/10	.18/10	.22/10	.25/10	.27/10	.27/10	.25/10	.22/10	.19/10	.18/10
	11	.09/13	.09/13	.11/11	.14/10	.17/10	.20/10	.22/10	.23/10	.22/10	.20/10	.18/10	.15/10	.14/10
	13	.10/14	.10/14	.11/13	.13/11	.16/10	.17/10	.18/10	.19/10	.18/10	.16/10	.14/10	.12/10	.11/10
	15	.09/14	.10/14	.11/14	.12/13	.14/11	.15/10	.15/10	.15/10	.15/10	.13/10	.11/10	.09/10	.08/10
	17	.09/14	.09/14	.09/14	.11/13	.12/11	.12/10	.13/10	.13/10	.12/10	.11/10	.09/10	.07/10	.07/10
	19	.07/14	.08/14	.08/14	.09/14	.10/11	.10/10	.11/10	.10/10	.10/10	.09/10	.07/10	.06/10	.05/10
	21	.06/14	.07/14	.07/14	.08/14	.08/13	.09/10	.09/10	.09/10	.08/10	.07/10	.06/10	.05/10	.04/10
20	7	.05/ 7	.05/ 7	.07/ 8	.10/13	.14/13	.17/13	.19/13	.20/13	.20/13	.19/13	.18/13	.16/13	.15/13
	9	.06/10	.06/10	.08/10	.11/10	.15/13	.17/13	.19/13	.20/13	.19/13	.18/13	.15/13	.13/13	.12/13
	11	.07/13	.08/13	.09/11	.12/10	.14/10	.16/13	.17/13	.17/13	.17/13	.15/13	.13/13	.10/13	.09/13
	13	.08/14	.09/14	.10/14	.12/13	.13/13	.15/13	.15/13	.15/13	.14/13	.12/13	.10/13	.08/13	.07/13
	15	.08/14	.08/14	.09/14	.11/13	.12/13	.13/13	.13/13	.12/13	.11/13	.10/13	.08/13	.06/13	.05/13
	17	.07/14	.08/14	.08/14	.09/14	.10/13	.11/13	.11/13	.10/13	.09/13	.08/13	.07/13	.05/13	.04/13
	19	.07/14	.07/14	.07/14	.08/14	.09/13	.09/13	.09/13	.09/13	.08/13	.07/13	.05/13	.04/13	.04/13
	21	.06/14	.06/14	.06/14	.07/14	.08/13	.08/13	.08/13	.07/13	.07/13	.06/13	.05/13	.03/13	.03/13
25	7	.04/ 7	.05/ 7	.07/ 9	.11/ 9	.15/ 9	.18/ 9	.19/ 9	.20/ 9	.19/ 9	.17/ 9	.15/ 9	.11/ 9	.09/17
	9	.05/ 9	.05/10	.08/10	.11/10	.14/10	.17/10	.18/10	.19/10	.18/17	.16/17	.13/17	.10/17	.08/17
	11	.06/13	.06/13	.08/11	.11/10	.13/10	.15/10	.16/10	.16/10	.15/17	.13/17	.11/17	.08/17	.06/17
	13	.07/14	.07/14	.08/13	.10/11	.12/11	.13/11	.14/11	.14/10	.12/17	.11/17	.09/17	.06/17	.05/17
	15	.07/16	.07/16	.08/14	.10/13	.11/11	.12/11	.12/11	.11/11	.10/17	.09/17	.07/17	.05/17	.04/17
	17	.06/16	.07/16	.07/16	.08/14	.09/11	.10/11	.10/11	.09/11	.09/17	.07/17	.06/17	.04/17	.03/17
	19	.06/16	.06/16	.07/16	.07/14	.08/14	.08/11	.08/11	.08/11	.07/17	.06/17	.05/17	.03/17	.03/17
	21	.05/16	.05/16	.06/16	.06/16	.07/14	.07/11	.07/11	.07/17	.06/17	.05/17	.04/17	.03/17	.02/17

ASR

SHORTCRESTED
RMS ROLL ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.12/ 7	.12/ 7	.13/ 7	.14/ 7	.15/ 7	.16/ 7	.16/ 7	.15/ 7	.14/ 7	.13/ 7	.12/ 7	.11/ 7	.10/ 7
	9	.15/10	.16/10	.17/10	.18/10	.19/10	.20/10	.20/10	.20/10	.19/10	.17/10	.16/10	.15/10	.14/10
	11	.16/10	.16/10	.17/10	.18/10	.20/10	.20/10	.21/10	.20/10	.19/10	.18/10	.17/10	.16/10	.15/10
	13	.14/10	.14/10	.15/10	.16/10	.17/10	.18/10	.18/10	.18/10	.17/10	.16/10	.15/10	.14/10	.13/10
	15	.11/10	.12/10	.12/10	.13/10	.14/10	.15/10	.15/10	.15/10	.14/10	.13/10	.12/10	.11/10	.11/10
	17	.09/10	.10/10	.10/10	.11/10	.12/10	.12/10	.12/10	.12/10	.12/10	.11/10	.10/10	.09/10	.09/10
	19	.08/10	.08/10	.08/10	.09/10	.10/10	.10/10	.10/10	.10/10	.10/10	.09/10	.08/10	.08/10	.08/10
	21	.06/10	.07/10	.07/10	.08/10	.08/10	.08/10	.09/10	.08/10	.08/10	.08/10	.07/10	.06/10	.06/10
5	7	.10/ 6	.11/ 6	.12/ 6	.13/ 6	.15/ 7	.16/10	.18/10	.19/10	.19/10	.19/10	.19/10	.19/10	.19/10
	9	.12/11	.13/11	.14/10	.16/10	.18/10	.20/10	.22/10	.24/10	.24/10	.24/10	.24/10	.23/10	.23/10
	11	.14/11	.14/11	.16/11	.18/11	.19/10	.21/10	.22/10	.23/10	.23/10	.22/10	.22/10	.21/10	.21/10
	13	.13/11	.14/11	.15/11	.16/11	.18/11	.19/10	.20/10	.20/10	.20/10	.19/10	.18/10	.17/10	.17/10
	15	.11/11	.12/11	.13/11	.14/11	.15/11	.16/10	.16/10	.16/10	.16/10	.15/10	.14/10	.14/10	.13/10
	17	.10/11	.10/11	.11/11	.12/11	.12/11	.13/10	.13/10	.13/10	.13/10	.12/10	.12/10	.11/10	.11/10
	19	.08/11	.08/11	.09/11	.10/11	.10/11	.11/11	.11/10	.11/10	.11/10	.10/10	.09/10	.09/10	.09/10
	21	.07/12	.07/11	.07/11	.08/11	.09/11	.09/11	.09/10	.09/10	.09/10	.08/10	.08/10	.07/10	.07/10
10	7	.09/ 7	.10/ 7	.11/ 7	.12/ 7	.15/10	.19/10	.22/10	.24/10	.25/10	.25/10	.24/10	.24/10	.23/10
	9	.09/ 7	.10/10	.11/10	.13/10	.16/10	.19/10	.21/10	.23/10	.24/10	.23/10	.22/10	.21/10	.20/10
	11	.10/13	.10/13	.11/11	.13/10	.15/10	.17/10	.19/10	.20/10	.20/10	.19/10	.18/10	.16/10	.16/10
	13	.09/13	.10/13	.11/13	.12/11	.14/10	.15/10	.16/10	.16/10	.16/10	.15/10	.14/10	.13/10	.12/10
	15	.08/13	.08/13	.09/13	.10/13	.12/11	.12/10	.13/10	.13/10	.13/10	.12/10	.11/10	.10/10	.09/10
	17	.07/13	.07/13	.08/13	.09/13	.10/11	.10/10	.11/10	.11/10	.10/10	.10/10	.09/10	.08/10	.07/10
	19	.06/13	.06/13	.07/13	.07/13	.08/11	.09/10	.09/10	.09/10	.08/10	.08/10	.07/10	.06/10	.06/10
	21	.05/13	.05/13	.06/13	.06/13	.07/11	.07/10	.07/10	.07/10	.07/10	.06/10	.06/10	.05/10	.05/10
15	7	.09/ 7	.09/ 7	.10/ 7	.12/10	.15/10	.17/10	.19/10	.20/10	.20/10	.18/10	.16/10	.14/10	.12/10
	9	.08/ 7	.08/ 8	.09/10	.11/10	.14/10	.16/10	.17/10	.17/10	.17/10	.15/10	.13/10	.11/10	.10/10
	11	.08/13	.08/12	.09/10	.10/10	.12/10	.13/10	.14/10	.14/10	.14/10	.12/10	.10/10	.09/10	.08/10
	13	.07/13	.08/13	.08/13	.09/10	.11/10	.11/10	.12/10	.12/10	.11/10	.10/10	.08/10	.07/10	.06/10
	15	.07/14	.07/14	.07/13	.08/11	.09/10	.10/10	.10/10	.09/10	.09/10	.08/10	.06/10	.05/10	.05/10
	17	.06/14	.06/14	.06/14	.07/13	.08/10	.08/10	.08/10	.08/10	.07/10	.06/10	.05/10	.04/10	.04/10
	19	.05/14	.05/14	.05/14	.06/13	.06/10	.07/10	.07/10	.06/10	.06/10	.05/10	.04/10	.03/10	.03/10
	21	.04/14	.04/14	.05/14	.05/13	.05/10	.06/10	.05/10	.05/10	.05/10	.04/10	.03/10	.03/10	.02/10
20	7	.08/ 7	.08/ 7	.09/ 7	.11/ 7	.13/13	.14/13	.14/13	.14/13	.13/13	.12/13	.11/13	.09/13	.08/13
	9	.08/ 8	.08/ 8	.09/10	.10/10	.12/10	.13/13	.13/13	.13/13	.12/13	.11/13	.09/13	.07/13	.06/13
	11	.07/12	.07/11	.08/10	.09/10	.11/10	.11/10	.12/10	.11/13	.10/13	.09/13	.07/13	.06/13	.05/13
	13	.07/14	.07/14	.08/13	.09/11	.09/10	.10/10	.10/10	.09/13	.08/13	.07/13	.06/13	.04/13	.04/13
	15	.06/14	.06/14	.07/14	.07/13	.08/11	.08/10	.08/13	.08/13	.07/13	.06/13	.05/13	.03/13	.03/13
	17	.05/14	.05/14	.06/14	.06/13	.07/13	.07/13	.07/13	.06/13	.06/13	.05/13	.04/13	.03/13	.02/13
	19	.05/14	.05/14	.05/14	.05/14	.06/13	.06/13	.06/13	.05/13	.05/13	.04/13	.03/13	.02/13	.02/13
	21	.04/14	.04/14	.04/14	.05/14	.05/13	.05/13	.05/13	.04/13	.04/13	.03/13	.02/13	.02/13	.01/13
25	7	.08/ 7	.08/ 7	.09/ 9	.11/ 9	.13/ 9	.14/ 9	.15/ 9	.15/ 9	.14/ 9	.12/ 9	.10/ 9	.07/ 9	.06/ 9
	9	.07/ 8	.07/ 8	.08/ 9	.10/ 9	.12/ 9	.13/ 9	.13/ 9	.13/ 9	.12/ 9	.10/ 9	.08/ 9	.06/ 9	.04/17
	11	.06/12	.07/11	.08/10	.09/10	.10/10	.11/10	.11/10	.11/10	.10/10	.08/10	.06/10	.04/17	.03/17
	13	.06/14	.06/14	.07/11	.08/10	.09/10	.09/10	.09/10	.09/10	.08/10	.07/10	.05/10	.03/17	.03/17
	15	.05/14	.05/14	.06/14	.07/11	.07/11	.08/10	.08/10	.07/10	.06/10	.05/10	.04/10	.03/17	.02/17
	17	.05/16	.05/16	.05/14	.06/14	.06/11	.06/11	.06/10	.06/10	.05/10	.04/10	.03/10	.02/17	.02/17
	19	.04/16	.04/16	.05/16	.05/14	.05/11	.05/11	.05/10	.05/10	.04/10	.03/10	.03/10	.02/17	.01/17
	21	.04/16	.04/16	.04/16	.04/14	.04/11	.05/11	.04/11	.04/10	.04/10	.03/10	.02/10	.01/17	.01/17

ASR

SHORTCRESTED

RMS PITCH IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.19/ 7	.18/ 7	.18/ 7	.18/ 7	.17/ 6	.16/ 6	.16/ 6	.16/ 6	.16/ 7	.16/ 7	.17/ 7	.17/ 7	.17/ 7
	9	.19/ 8	.18/ 8	.18/ 8	.17/ 8	.16/ 7	.15/ 7	.14/ 7	.14/ 7	.15/ 8	.16/ 8	.17/ 8	.17/ 8	.18/ 8
	11	.17/ 9	.16/ 9	.16/ 9	.14/ 9	.13/ 8	.12/ 8	.12/ 8	.12/ 8	.13/ 9	.14/ 9	.15/ 9	.16/ 9	.16/ 9
	13	.14/10	.14/10	.13/10	.12/10	.11/10	.10/ 9	.10/ 9	.10/10	.11/10	.12/10	.13/10	.13/10	.14/10
	15	.12/10	.12/10	.11/10	.10/10	.09/10	.08/10	.08/10	.08/10	.09/10	.10/10	.11/10	.11/10	.12/10
	17	.10/12	.10/11	.09/11	.09/11	.08/11	.07/11	.07/11	.07/11	.08/11	.08/12	.09/12	.10/12	.10/12
	19	.09/13	.09/13	.08/13	.07/13	.07/13	.06/13	.06/13	.06/13	.06/13	.07/13	.08/13	.08/13	.09/13
	21	.08/14	.07/14	.07/14	.06/14	.06/14	.05/14	.05/14	.05/14	.06/14	.06/14	.07/14	.07/14	.07/14
5	7	.21/ 7	.21/ 7	.20/ 7	.19/ 7	.18/ 7	.17/ 7	.16/ 7	.15/ 7	.14/ 9	.14/ 9	.14/ 9	.14/ 9	.14/ 9
	9	.22/ 7	.21/ 7	.20/ 7	.19/ 7	.17/ 7	.16/ 7	.14/ 8	.14/ 9	.14/10	.14/10	.15/10	.15/10	.15/10
	11	.19/ 8	.19/ 8	.18/ 8	.16/ 8	.15/ 8	.13/ 8	.12/ 9	.11/10	.12/10	.13/10	.13/11	.14/11	.14/11
	13	.16/10	.16/10	.15/10	.13/10	.12/10	.11/10	.10/10	.09/11	.10/11	.11/12	.12/12	.12/12	.12/12
	15	.13/10	.13/10	.12/10	.11/10	.10/10	.09/10	.08/11	.08/12	.08/12	.09/12	.10/13	.10/13	.11/13
	17	.11/11	.11/10	.10/10	.09/10	.08/10	.07/11	.07/12	.07/13	.07/13	.08/13	.09/13	.09/13	.09/13
	19	.10/12	.09/12	.09/12	.08/12	.07/12	.06/12	.06/13	.06/13	.06/14	.07/14	.07/14	.08/14	.08/14
	21	.08/14	.08/14	.08/14	.07/13	.06/13	.05/14	.05/14	.05/14	.05/15	.06/15	.06/15	.07/15	.07/15
10	7	.21/ 7	.21/ 7	.20/ 7	.19/ 7	.18/ 7	.16/ 7	.15/ 7	.14/13	.13/13	.13/13	.12/13	.12/13	.12/13
	9	.23/ 8	.23/ 8	.22/ 8	.20/ 7	.18/ 7	.16/ 7	.14/ 7	.13/13	.13/13	.13/13	.13/13	.13/13	.13/13
	11	.20/ 8	.20/ 8	.19/ 8	.17/ 8	.15/ 8	.13/ 8	.12/12	.11/13	.11/13	.11/13	.12/13	.13/13	.13/13
	13	.17/ 8	.17/ 8	.16/ 8	.14/ 8	.13/ 8	.11/ 8	.10/13	.09/13	.09/13	.10/13	.11/13	.11/13	.11/13
	15	.14/ 8	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.09/10	.08/13	.08/13	.08/13	.09/13	.09/13	.10/13	.10/13
	17	.12/ 9	.12/ 9	.11/ 9	.10/ 9	.09/10	.08/12	.07/13	.06/13	.07/14	.07/14	.08/15	.08/15	.09/15
	19	.10/11	.10/11	.09/11	.08/10	.07/11	.06/13	.06/13	.06/14	.06/15	.06/15	.07/15	.07/15	.07/15
	21	.09/12	.08/12	.08/12	.07/12	.06/12	.05/13	.05/14	.05/15	.05/15	.06/15	.06/16	.06/16	.07/16
15	7	.20/ 8	.20/ 7	.19/ 7	.18/ 7	.17/ 7	.16/ 7	.15/10	.13/14	.12/14	.11/14	.11/14	.11/14	.11/20
	9	.23/ 8	.23/ 8	.22/ 8	.20/ 8	.18/ 8	.16/ 8	.14/14	.13/14	.12/14	.12/17	.12/17	.12/17	.12/17
	11	.21/ 8	.21/ 8	.20/ 8	.18/ 8	.16/ 8	.14/ 8	.12/14	.11/17	.10/17	.11/17	.11/20	.11/20	.11/20
	13	.18/ 8	.18/ 8	.17/ 8	.15/ 8	.13/ 8	.11/10	.10/14	.09/17	.09/17	.09/20	.10/20	.10/20	.10/20
	15	.15/ 8	.15/ 8	.14/ 8	.12/ 8	.11/ 8	.09/10	.08/14	.08/17	.08/20	.08/20	.09/20	.09/20	.09/20
	17	.12/ 8	.12/ 8	.11/ 8	.10/ 8	.09/ 8	.08/14	.07/17	.06/17	.07/20	.07/20	.08/20	.08/20	.08/20
	19	.11/ 8	.10/ 8	.10/ 8	.09/ 8	.08/10	.07/14	.06/17	.05/17	.06/20	.06/20	.07/20	.07/20	.07/20
	21	.09/ 9	.09/ 9	.08/ 8	.07/ 8	.06/10	.06/14	.05/17	.05/20	.05/20	.05/20	.06/20	.06/20	.06/20
20	7	.19/ 8	.19/ 8	.18/ 8	.18/ 8	.17/ 8	.16/13	.15/13	.13/13	.12/13	.11/13	.11/13	.10/13	.10/13
	9	.24/ 8	.23/ 8	.22/ 8	.21/ 8	.19/ 8	.16/ 8	.14/13	.13/13	.12/13	.11/13	.11/19	.12/27	.12/27
	11	.22/ 8	.22/ 8	.20/ 8	.19/ 8	.17/ 8	.14/ 8	.12/13	.11/19	.10/19	.10/23	.11/23	.11/23	.11/23
	13	.19/ 8	.18/ 8	.17/ 8	.16/ 8	.14/ 8	.12/13	.10/19	.09/23	.09/23	.09/23	.10/23	.10/26	.10/26
	15	.16/ 8	.15/ 8	.14/ 8	.13/ 8	.11/ 8	.10/13	.08/19	.08/23	.08/23	.08/23	.08/26	.09/26	.09/26
	17	.13/ 8	.13/ 8	.12/ 8	.11/ 8	.09/ 8	.08/13	.07/23	.06/23	.06/23	.07/26	.07/26	.08/26	.08/26
	19	.11/ 8	.11/ 8	.10/ 8	.09/ 8	.08/ 8	.07/13	.06/23	.05/23	.06/23	.06/26	.06/26	.07/26	.07/26
	21	.09/ 8	.09/ 8	.09/ 8	.08/ 8	.07/ 8	.06/19	.05/23	.05/23	.05/26	.05/26	.06/26	.06/26	.06/26
25	7	.17/ 8	.17/ 8	.17/ 8	.17/ 8	.17/ 9	.16/17	.15/17	.14/17	.13/17	.12/17	.12/17	.12/17	.11/17
	9	.24/ 8	.24/ 8	.23/ 8	.21/ 8	.19/ 9	.17/17	.15/17	.14/17	.13/17	.12/17	.13/17	.13/17	.13/17
	11	.23/ 9	.23/ 9	.22/ 9	.20/ 9	.18/ 9	.15/17	.13/17	.12/17	.11/17	.11/17	.12/17	.12/17	.12/37
	13	.20/ 9	.19/ 9	.18/ 9	.17/ 9	.15/ 9	.13/17	.11/17	.10/17	.09/17	.10/17	.10/33	.11/33	.11/33
	15	.17/ 9	.16/ 9	.15/ 9	.14/ 9	.12/ 9	.10/17	.09/17	.08/17	.08/17	.08/33	.09/33	.09/33	.10/33
	17	.14/ 9	.14/ 9	.13/ 9	.12/ 9	.10/ 9	.09/17	.07/17	.07/17	.07/33	.07/33	.08/33	.08/33	.08/33
	19	.12/ 9	.11/ 9	.11/ 9	.10/ 9	.08/ 9	.07/17	.06/17	.06/17	.06/33	.06/33	.07/33	.07/33	.07/33
	21	.10/ 9	.10/ 9	.09/ 9	.08/ 9	.07/17	.06/17	.05/17	.05/17	.05/33	.06/33	.06/33	.06/33	.06/33

ASR

SHORTCRESTED

RMS PITCH VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.18/ 6	.18/ 6	.18/ 6	.18/ 6	.18/ 6	.17/ 6	.17/ 6	.17/ 6	.17/ 6	.17/ 6	.17/ 6	.16/ 7	.16/ 7
	9	.16/ 7	.16/ 7	.16/ 7	.15/ 7	.15/ 7	.14/ 6	.14/ 6	.14/ 6	.14/ 7	.14/ 7	.15/ 7	.15/ 7	.15/ 7
	11	.13/ 7	.13/ 7	.13/ 7	.12/ 7	.11/ 7	.11/ 7	.11/ 6	.11/ 7	.11/ 7	.11/ 7	.12/ 8	.12/ 8	.13/ 8
	13	.11/ 8	.10/ 8	.10/ 8	.10/ 8	.09/ 7	.08/ 7	.08/ 7	.08/ 7	.09/ 7	.09/ 8	.10/ 8	.10/ 8	.10/ 8
	15	.09/ 8	.08/ 8	.08/ 8	.08/ 8	.07/ 8	.07/ 7	.06/ 7	.06/ 7	.07/ 8	.07/ 8	.08/ 8	.08/ 8	.08/ 8
	17	.07/ 8	.07/ 8	.07/ 8	.06/ 8	.06/ 8	.05/ 7	.05/ 7	.05/ 7	.06/ 8	.06/ 8	.06/ 9	.07/ 9	.07/ 9
	19	.06/ 9	.06/ 8	.05/ 8	.05/ 8	.05/ 8	.04/ 7	.04/ 7	.04/ 7	.05/ 8	.05/ 9	.05/ 9	.05/ 9	.06/ 9
	21	.05/ 9	.05/ 9	.05/ 8	.04/ 8	.04/ 8	.04/ 7	.03/ 7	.04/ 8	.04/ 8	.04/ 9	.04/ 9	.05/ 9	.05/ 9
5	7	.24/ 7	.24/ 7	.23/ 7	.22/ 7	.20/ 6	.19/ 6	.17/ 6	.15/ 6	.14/ 6	.12/ 8	.12/ 9	.11/ 9	.11/ 9
	9	.22/ 7	.22/ 7	.21/ 7	.20/ 7	.18/ 7	.16/ 7	.14/ 7	.12/ 6	.11/ 9	.11/ 9	.10/ 9	.10/10	.10/10
	11	.18/ 7	.18/ 7	.17/ 7	.16/ 7	.14/ 7	.12/ 7	.11/ 7	.10/ 9	.09/10	.09/10	.09/10	.09/10	.09/10
	13	.14/ 7	.14/ 7	.13/ 7	.12/ 7	.11/ 7	.10/ 7	.08/ 7	.07/ 9	.07/10	.07/10	.07/10	.07/10	.07/10
	15	.11/ 7	.11/ 7	.11/ 7	.10/ 7	.09/ 7	.08/ 7	.07/ 7	.06/10	.06/10	.06/10	.06/11	.06/11	.06/11
	17	.09/ 7	.09/ 7	.09/ 7	.08/ 7	.07/ 7	.06/ 7	.05/ 7	.05/10	.05/10	.05/11	.05/11	.05/11	.05/11
	19	.08/ 7	.07/ 7	.07/ 7	.06/ 7	.06/ 7	.05/ 7	.04/ 7	.04/10	.04/10	.04/11	.04/11	.04/11	.04/11
	21	.06/ 7	.06/ 7	.06/ 7	.05/ 7	.05/ 7	.04/ 7	.04/ 7	.03/10	.03/11	.03/11	.03/11	.03/11	.04/11
10	7	.26/ 7	.26/ 7	.25/ 7	.23/ 7	.22/ 7	.19/ 7	.17/ 7	.14/ 6	.11/ 6	.10/13	.08/13	.07/13	.07/13
	9	.26/ 7	.26/ 7	.24/ 7	.22/ 7	.20/ 7	.17/ 7	.14/ 7	.12/ 7	.10/13	.08/13	.07/13	.07/13	.07/13
	11	.22/ 7	.21/ 7	.20/ 7	.18/ 7	.16/ 7	.14/ 7	.11/ 7	.09/ 7	.08/13	.07/13	.06/13	.06/13	.06/13
	13	.17/ 7	.17/ 7	.16/ 7	.15/ 7	.13/ 7	.11/ 7	.09/ 7	.07/ 7	.06/13	.05/13	.05/13	.05/13	.05/13
	15	.14/ 8	.14/ 8	.13/ 7	.12/ 7	.10/ 7	.08/ 7	.07/ 7	.06/13	.05/13	.04/13	.04/13	.04/13	.04/13
	17	.11/ 8	.11/ 8	.10/ 8	.09/ 7	.08/ 7	.07/ 7	.06/ 7	.05/13	.04/13	.04/13	.04/13	.04/13	.04/13
	19	.09/ 8	.09/ 8	.08/ 8	.08/ 7	.07/ 7	.06/ 7	.05/ 7	.04/13	.03/13	.03/13	.03/13	.03/13	.03/13
	21	.08/ 8	.07/ 8	.07/ 8	.06/ 7	.05/ 7	.05/ 7	.04/ 7	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
15	7	.26/ 7	.26/ 7	.25/ 7	.24/ 7	.22/ 7	.20/ 7	.17/ 7	.13/ 7	.10/10	.08/10	.06/10	.05/14	.05/14
	9	.29/ 8	.28/ 8	.27/ 8	.25/ 8	.22/ 7	.19/ 7	.15/ 7	.12/ 7	.09/14	.07/14	.05/14	.05/17	.05/17
	11	.24/ 8	.24/ 8	.23/ 8	.21/ 8	.18/ 8	.15/ 7	.12/ 7	.09/ 7	.07/14	.05/17	.05/17	.04/17	.04/17
	13	.20/ 8	.19/ 8	.18/ 8	.16/ 8	.14/ 8	.12/ 8	.09/ 7	.07/ 7	.05/14	.04/17	.04/20	.04/20	.04/20
	15	.16/ 8	.15/ 8	.15/ 8	.13/ 8	.11/ 8	.09/ 8	.07/ 7	.06/ 7	.04/17	.04/20	.03/20	.03/20	.03/20
	17	.13/ 8	.12/ 8	.12/ 8	.11/ 8	.09/ 8	.08/ 8	.06/ 7	.05/ 7	.04/17	.03/20	.03/20	.03/20	.03/20
	19	.10/ 8	.10/ 8	.10/ 8	.09/ 8	.07/ 8	.06/ 8	.05/ 7	.04/ 7	.03/17	.02/20	.02/20	.02/20	.02/20
	21	.09/ 8	.09/ 8	.08/ 8	.07/ 8	.06/ 8	.05/ 8	.04/ 7	.03/ 7	.02/20	.02/20	.02/20	.02/20	.02/20
20	7	.26/ 8	.26/ 8	.25/ 8	.24/ 8	.22/ 7	.20/ 7	.17/ 7	.14/ 7	.10/13	.07/13	.05/13	.03/13	.03/13
	9	.31/ 8	.30/ 8	.29/ 8	.27/ 8	.24/ 8	.20/ 8	.16/ 7	.12/ 7	.09/13	.06/13	.04/13	.03/13	.03/13
	11	.27/ 8	.27/ 8	.25/ 8	.23/ 8	.20/ 8	.17/ 8	.13/ 8	.10/ 7	.07/13	.05/13	.04/13	.03/23	.03/23
	13	.22/ 8	.22/ 8	.20/ 8	.18/ 8	.16/ 8	.13/ 8	.10/ 8	.08/ 7	.05/13	.04/13	.03/23	.03/23	.03/23
	15	.18/ 8	.17/ 8	.16/ 8	.15/ 8	.13/ 8	.10/ 8	.08/ 8	.06/ 7	.04/13	.03/23	.03/23	.02/23	.02/23
	17	.14/ 8	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.08/ 8	.07/ 8	.05/ 7	.03/23	.03/23	.02/23	.02/26	.02/26
	19	.12/ 8	.12/ 8	.11/ 8	.10/ 8	.08/ 8	.07/ 8	.05/ 8	.04/ 7	.03/23	.02/23	.02/26	.02/26	.02/26
	21	.10/ 8	.10/ 8	.09/ 8	.08/ 8	.07/ 8	.06/ 8	.04/ 8	.03/ 7	.02/23	.02/23	.02/26	.02/26	.02/26
25	7	.25/ 8	.25/ 8	.25/ 8	.24/ 8	.23/ 8	.20/ 7	.18/ 7	.14/ 7	.10/ 9	.07/ 9	.05/17	.03/17	.03/17
	9	.33/ 8	.33/ 8	.31/ 8	.29/ 8	.26/ 8	.22/ 8	.18/ 8	.13/ 7	.09/17	.06/17	.04/17	.03/17	.03/17
	11	.30/ 8	.30/ 8	.28/ 8	.25/ 8	.22/ 8	.18/ 8	.15/ 8	.11/ 8	.07/17	.05/17	.03/17	.02/17	.02/17
	13	.25/ 8	.24/ 8	.23/ 8	.21/ 8	.18/ 8	.15/ 8	.12/ 8	.08/17	.06/17	.04/17	.03/17	.02/17	.02/17
	15	.20/ 8	.20/ 8	.19/ 8	.17/ 8	.14/ 8	.12/ 8	.09/ 8	.07/17	.05/17	.03/17	.02/17	.02/33	.02/33
	17	.16/ 8	.16/ 8	.15/ 8	.14/ 8	.12/ 8	.10/ 8	.07/ 8	.05/17	.04/17	.02/17	.02/33	.02/33	.02/33
	19	.13/ 8	.13/ 8	.12/ 8	.11/ 8	.10/ 8	.08/ 8	.06/ 8	.04/17	.03/17	.02/17	.02/33	.01/33	.01/33
	21	.11/ 8	.11/ 8	.10/ 8	.09/ 8	.08/ 8	.06/ 8	.05/ 8	.04/17	.02/17	.02/33	.01/33	.01/33	.01/33

ASR

SHORTCRESTED

RMS PITCH ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.18/ 6	.18/ 6	.18/ 6	.19/ 6	.19/ 6	.19/ 6	.19/ 5	.19/ 5	.18/ 6	.18/ 6	.17/ 6	.17/ 6	.17/ 6
	9	.15/ 7	.15/ 7	.15/ 6	.15/ 6	.15/ 6	.14/ 6	.14/ 6	.14/ 6	.14/ 6	.14/ 6	.14/ 7	.14/ 7	.14/ 7
	11	.12/ 7	.12/ 7	.11/ 7	.11/ 6	.11/ 6	.11/ 6	.10/ 6	.10/ 6	.10/ 6	.11/ 7	.11/ 7	.11/ 7	.11/ 7
	13	.09/ 7	.09/ 7	.09/ 7	.08/ 6	.08/ 6	.08/ 6	.08/ 6	.08/ 6	.08/ 6	.08/ 7	.08/ 7	.08/ 7	.08/ 7
	15	.07/ 7	.07/ 7	.07/ 7	.07/ 7	.06/ 6	.06/ 6	.06/ 6	.06/ 6	.06/ 6	.06/ 7	.06/ 7	.07/ 7	.07/ 7
	17	.06/ 7	.06/ 7	.05/ 7	.05/ 7	.05/ 6	.05/ 6	.05/ 6	.05/ 6	.05/ 6	.05/ 7	.05/ 7	.05/ 7	.05/ 7
	19	.05/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 6	.04/ 6	.04/ 6	.04/ 6	.04/ 6	.04/ 7	.04/ 7	.04/ 7	.04/ 7
	21	.04/ 7	.04/ 7	.04/ 7	.03/ 7	.03/ 6	.03/ 6	.03/ 6	.03/ 6	.03/ 6	.03/ 7	.03/ 7	.04/ 7	.04/ 7
5	7	.28/ 7	.27/ 7	.27/ 6	.28/ 8	.24/ 8	.22/ 6	.19/ 6	.17/ 6	.14/ 6	.12/ 6	.10/ 8	.09/ 8	.09/ 8
	9	.24/ 7	.24/ 7	.23/ 7	.21/ 7	.20/ 6	.17/ 6	.15/ 6	.13/ 6	.11/ 6	.09/ 9	.08/ 9	.08/ 9	.08/ 9
	11	.19/ 7	.18/ 7	.18/ 7	.16/ 7	.15/ 7	.13/ 6	.11/ 6	.09/ 6	.08/ 6	.07/ 9	.06/ 9	.06/ 9	.06/10
	13	.14/ 7	.14/ 7	.13/ 7	.13/ 7	.11/ 7	.10/ 6	.08/ 6	.07/ 6	.06/ 6	.05/ 9	.05/10	.05/10	.05/10
	15	.11/ 7	.11/ 7	.10/ 7	.10/ 7	.09/ 7	.08/ 7	.06/ 6	.05/ 6	.05/ 6	.04/10	.04/10	.04/10	.04/10
	17	.09/ 7	.09/ 7	.08/ 7	.08/ 7	.07/ 7	.06/ 7	.05/ 6	.04/ 6	.04/ 6	.03/10	.03/10	.03/10	.03/10
	19	.07/ 7	.07/ 7	.07/ 7	.06/ 7	.06/ 7	.05/ 7	.04/ 6	.03/ 6	.03/ 6	.03/10	.03/10	.03/10	.03/10
	21	.06/ 7	.06/ 7	.06/ 7	.05/ 7	.05/ 7	.04/ 7	.03/ 6	.03/ 6	.02/ 6	.02/10	.02/10	.02/10	.02/10
10	7	.33/ 7	.33/ 7	.32/ 7	.30/ 7	.27/ 7	.24/ 7	.20/ 6	.16/ 6	.12/ 6	.09/ 6	.07/13	.05/13	.05/13
	9	.31/ 7	.31/ 7	.29/ 7	.27/ 7	.24/ 7	.20/ 7	.17/ 7	.13/ 6	.10/ 6	.07/13	.05/13	.04/13	.04/13
	11	.25/ 7	.24/ 7	.23/ 7	.21/ 7	.19/ 7	.16/ 7	.13/ 7	.10/ 7	.07/ 6	.05/13	.04/13	.04/13	.03/13
	13	.19/ 7	.19/ 7	.18/ 7	.16/ 7	.14/ 7	.12/ 7	.10/ 7	.07/ 7	.05/ 6	.04/13	.03/13	.03/13	.03/13
	15	.15/ 7	.15/ 7	.14/ 7	.13/ 7	.11/ 7	.09/ 7	.07/ 7	.06/ 7	.04/ 6	.03/13	.02/13	.02/13	.02/13
	17	.12/ 7	.12/ 7	.11/ 7	.10/ 7	.09/ 7	.07/ 7	.06/ 7	.04/ 7	.03/ 6	.02/13	.02/13	.02/13	.02/13
	19	.10/ 7	.10/ 7	.09/ 7	.08/ 7	.07/ 7	.06/ 7	.05/ 7	.04/ 7	.03/ 6	.02/13	.02/13	.02/13	.01/13
	21	.08/ 7	.08/ 7	.07/ 7	.07/ 7	.06/ 7	.05/ 7	.04/ 7	.03/ 7	.02/ 6	.02/13	.01/13	.01/13	.01/13
15	7	.36/ 7	.36/ 7	.35/ 7	.33/ 7	.30/ 7	.26/ 7	.22/ 7	.17/ 6	.12/ 6	.08/ 6	.05/10	.03/10	.03/10
	9	.37/ 7	.36/ 7	.34/ 7	.32/ 7	.28/ 7	.23/ 7	.19/ 7	.14/ 7	.10/ 6	.06/ 6	.04/10	.03/14	.02/14
	11	.30/ 8	.30/ 8	.28/ 8	.25/ 7	.22/ 7	.18/ 7	.14/ 7	.11/ 7	.07/ 7	.04/ 6	.03/14	.02/17	.02/17
	13	.24/ 8	.23/ 8	.22/ 8	.20/ 8	.17/ 7	.14/ 7	.11/ 7	.08/ 7	.05/ 7	.03/ 6	.02/17	.02/17	.02/17
	15	.19/ 8	.18/ 8	.17/ 8	.16/ 8	.13/ 7	.11/ 7	.09/ 7	.06/ 7	.04/ 7	.03/ 6	.02/17	.01/20	.01/20
	17	.15/ 8	.15/ 8	.14/ 8	.12/ 8	.11/ 7	.09/ 7	.07/ 7	.05/ 7	.03/ 7	.02/ 6	.01/20	.01/20	.01/20
	19	.12/ 8	.12/ 8	.11/ 8	.10/ 8	.09/ 7	.07/ 7	.06/ 7	.04/ 7	.03/ 7	.02/ 6	.01/20	.01/20	.01/20
	21	.10/ 8	.10/ 8	.09/ 8	.08/ 8	.07/ 7	.06/ 7	.05/ 7	.03/ 7	.02/ 7	.01/ 6	.01/20	.01/20	.01/20
20	7	.38/ 8	.37/ 8	.36/ 8	.34/ 8	.32/ 7	.28/ 7	.23/ 7	.18/ 7	.13/ 7	.08/ 7	.04/ 7	.02/13	.02/13
	9	.42/ 8	.41/ 8	.39/ 8	.36/ 8	.32/ 8	.27/ 8	.21/ 7	.16/ 7	.11/ 7	.06/ 7	.03/13	.02/13	.01/13
	11	.36/ 8	.35/ 8	.33/ 8	.30/ 8	.26/ 8	.21/ 8	.17/ 7	.12/ 7	.08/ 7	.05/ 7	.02/13	.01/13	.01/13
	13	.28/ 8	.28/ 8	.26/ 8	.24/ 8	.20/ 8	.17/ 8	.13/ 7	.09/ 7	.06/ 7	.03/ 7	.02/13	.01/13	.01/13
	15	.22/ 8	.22/ 8	.21/ 8	.19/ 8	.16/ 8	.13/ 8	.10/ 8	.07/ 7	.05/ 7	.03/ 7	.01/13	.01/23	.01/23
	17	.18/ 8	.18/ 8	.16/ 8	.15/ 8	.13/ 8	.10/ 8	.08/ 8	.06/ 7	.04/ 7	.02/ 7	.01/13	.01/23	.01/23
	19	.15/ 8	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.08/ 8	.06/ 8	.05/ 7	.03/ 7	.02/ 7	.01/13	.01/23	.01/23
	21	.12/ 8	.12/ 8	.11/ 8	.10/ 8	.09/ 8	.07/ 8	.05/ 8	.04/ 7	.02/ 7	.01/ 7	.01/13	.01/23	.00/23
25	7	.38/ 8	.38/ 8	.37/ 8	.36/ 8	.33/ 8	.30/ 7	.25/ 7	.19/ 7	.14/ 7	.09/ 6	.04/ 9	.02/ 9	.02/ 9
	9	.47/ 8	.46/ 8	.44/ 8	.41/ 8	.36/ 8	.30/ 8	.24/ 8	.18/ 7	.12/ 7	.07/ 6	.03/17	.02/17	.01/17
	11	.41/ 8	.41/ 8	.38/ 8	.35/ 8	.30/ 8	.25/ 8	.19/ 8	.14/ 8	.09/ 7	.05/ 7	.02/17	.01/17	.01/17
	13	.33/ 8	.33/ 8	.31/ 8	.28/ 8	.24/ 8	.20/ 8	.15/ 8	.11/ 8	.07/ 7	.04/ 7	.02/17	.01/17	.01/17
	15	.27/ 8	.26/ 8	.24/ 8	.22/ 8	.19/ 8	.15/ 8	.12/ 8	.08/ 8	.05/ 7	.03/ 7	.01/17	.01/17	.01/17
	17	.21/ 8	.21/ 8	.20/ 8	.18/ 8	.15/ 8	.12/ 8	.09/ 8	.07/ 8	.04/ 7	.02/ 7	.01/17	.01/17	.01/17
	19	.17/ 8	.17/ 8	.16/ 8	.14/ 8	.12/ 8	.10/ 8	.08/ 8	.05/ 8	.03/ 7	.02/ 7	.01/17	.01/17	.00/17
	21	.14/ 8	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.08/ 8	.06/ 8	.04/ 8	.03/ 7	.02/ 7	.01/17	.00/17	.00/17

ASR

SHORTCRESTED
RMS YAW IN DEGREES/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.05/ 7	.06/ 7	.05/ 7	.05/ 7	.05/ 7	.04/ 7	.04/ 7	.04/ 7
	9	.05/ 9	.05/ 9	.05/ 8	.05/ 8	.05/ 8	.06/ 8	.06/ 8	.05/ 8	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.04/ 8
	11	.05/10	.05/10	.05/10	.05/10	.05/10	.05/10	.05/10	.05/10	.05/ 9	.05/ 9	.04/ 9	.04/ 9	.04/ 9
	13	.04/10	.04/10	.04/10	.04/10	.05/10	.05/10	.05/10	.04/11	.04/12	.04/12	.04/12	.04/12	.04/12
	15	.04/10	.04/10	.04/10	.04/10	.04/10	.04/10	.04/11	.04/12	.04/13	.04/13	.03/13	.03/13	.03/13
	17	.03/10	.03/10	.03/10	.03/10	.03/10	.03/10	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
	19	.03/10	.03/10	.03/10	.03/10	.03/10	.03/10	.03/13	.03/13	.03/14	.03/14	.03/14	.03/14	.03/14
	21	.02/10	.02/10	.03/10	.03/10	.03/10	.03/14	.03/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14
5	7	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.06/ 8	.06/ 8	.06/ 8	.06/ 8	.05/ 9	.05/ 9	.05/ 9
	9	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.05/ 8	.05/ 9	.06/ 9	.06/ 9	.06/ 9	.06/ 9	.06/ 9	.05/ 9	.05/10
	11	.04/11	.04/11	.04/11	.04/11	.05/11	.05/11	.05/11	.05/11	.05/12	.05/12	.05/12	.05/12	.05/12
	13	.04/12	.04/12	.04/11	.04/11	.04/11	.04/12	.05/12	.05/12	.05/12	.05/12	.05/12	.05/12	.05/12
	15	.03/12	.03/12	.03/12	.03/12	.04/12	.04/12	.04/12	.04/12	.04/12	.04/13	.04/13	.04/13	.04/13
	17	.03/12	.03/12	.03/12	.03/12	.03/12	.03/12	.03/12	.03/12	.04/13	.04/13	.03/13	.03/13	.03/13
	19	.02/12	.02/12	.02/12	.03/12	.03/12	.03/12	.03/12	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
	21	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/13	.03/14	.03/14	.03/14	.03/14	.03/14	.03/14
10	7	.03/ 7	.03/ 7	.03/ 7	.04/ 7	.05/ 8	.05/ 8	.06/12	.07/12	.07/12	.07/12	.07/12	.07/12	.07/13
	9	.03/ 8	.03/ 8	.04/ 8	.04/ 8	.05/ 9	.05/12	.06/12	.07/12	.07/12	.07/13	.07/13	.07/13	.07/13
	11	.03/10	.03/10	.03/10	.04/10	.04/11	.05/12	.05/12	.06/12	.06/13	.06/13	.06/13	.06/13	.06/13
	13	.03/13	.03/13	.03/13	.03/12	.04/12	.04/12	.05/12	.05/13	.05/13	.05/13	.05/13	.05/13	.05/13
	15	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13	.04/13	.04/13	.04/13	.05/13	.05/13	.05/13	.05/13
	17	.02/13	.02/13	.02/13	.02/13	.03/13	.03/13	.03/13	.04/13	.04/13	.04/13	.04/13	.04/13	.04/13
	19	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
	21	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
15	7	.02/ 7	.03/ 7	.03/ 7	.04/10	.05/10	.06/14	.07/14	.08/14	.09/14	.10/14	.10/14	.10/14	.10/14
	9	.03/ 8	.03/ 8	.03/ 8	.03/10	.04/10	.05/14	.07/14	.07/14	.08/14	.08/14	.08/14	.08/14	.08/14
	11	.03/10	.03/10	.03/10	.03/10	.04/14	.05/14	.05/14	.06/14	.07/14	.07/14	.07/14	.07/14	.07/14
	13	.02/12	.02/12	.03/11	.03/12	.03/14	.04/14	.04/14	.05/14	.05/14	.05/14	.05/14	.05/14	.05/14
	15	.02/13	.02/13	.02/13	.02/13	.03/14	.03/14	.04/14	.04/14	.04/14	.04/14	.04/14	.04/14	.04/17
	17	.02/14	.02/14	.02/13	.02/13	.02/14	.03/14	.03/14	.03/14	.03/14	.04/14	.04/14	.04/14	.04/17
	19	.02/14	.02/14	.02/14	.02/13	.02/14	.02/14	.02/14	.03/14	.03/14	.03/14	.03/14	.03/17	.03/17
	21	.01/14	.01/14	.01/14	.01/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/17	.02/17
20	7	.02/ 7	.02/ 7	.03/ 7	.03/13	.05/13	.06/13	.07/13	.09/13	.09/13	.10/13	.10/13	.10/13	.10/13
	9	.02/ 8	.02/ 8	.03/ 8	.03/13	.04/13	.05/13	.06/13	.07/13	.08/13	.08/13	.08/13	.08/13	.08/13
	11	.02/10	.02/10	.02/10	.03/13	.03/13	.04/13	.05/13	.05/13	.06/13	.06/13	.06/13	.06/13	.06/13
	13	.02/11	.02/11	.02/11	.02/13	.03/13	.03/13	.04/13	.04/13	.04/13	.05/13	.05/13	.05/13	.05/13
	15	.02/13	.02/13	.02/13	.02/13	.02/13	.03/13	.03/13	.03/13	.03/13	.04/13	.04/13	.04/13	.04/13
	17	.01/13	.01/13	.02/13	.02/13	.02/13	.02/13	.02/13	.03/13	.03/13	.03/13	.03/13	.03/13	.03/13
	19	.01/14	.01/14	.01/13	.01/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13
	21	.01/14	.01/14	.01/14	.01/13	.01/13	.01/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13
25	7	.02/ 7	.02/ 7	.02/ 9	.03/ 9	.04/ 9	.06/39	.07/45	.09/52	.10/52	.11/52	.11/52	.11/90	.11/90
	9	.02/ 8	.02/ 8	.02/ 9	.03/ 9	.03/17	.05/39	.07/45	.08/45	.09/45	.10/52	.11/52	.12/52	.12/57
	11	.02/10	.02/10	.02/ 9	.02/ 9	.03/17	.04/39	.05/45	.07/45	.08/45	.09/45	.09/52	.10/52	.10/52
	13	.02/10	.02/10	.02/10	.02/ 9	.02/17	.03/39	.04/42	.05/45	.06/45	.07/45	.08/45	.08/52	.08/52
	15	.01/12	.01/12	.01/12	.02/12	.02/17	.02/39	.03/42	.04/45	.05/45	.06/45	.06/45	.05/45	.07/45
	17	.01/13	.01/13	.01/13	.01/13	.02/17	.02/39	.03/42	.03/45	.04/45	.04/45	.05/45	.05/45	.05/45
	19	.01/13	.01/13	.01/13	.01/13	.01/17	.02/39	.02/42	.03/45	.04/45	.04/45	.04/45	.04/45	.04/45
	21	.01/13	.01/13	.01/13	.01/13	.01/17	.01/39	.02/42	.02/45	.03/45	.03/45	.03/45	.04/45	.04/45

ASR

SHORTCRESTED

RMS YAW VEL IN DPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 6	.06/ 6	.06/ 6	.06/ 6	.05/ 7	.05/ 7	.04/ 7	.04/ 7	.04/ 7
	9	.04/ 8	.04/ 8	.04/ 8	.04/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.04/ 7	.04/ 8	.04/ 8	.04/ 8
	11	.03/10	.03/10	.04/10	.04/10	.04/10	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.03/ 8	.03/ 8	.03/ 8
	13	.03/10	.03/10	.03/10	.03/10	.03/10	.03/10	.03/10	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.03/ 9
	15	.02/10	.02/10	.02/10	.03/10	.03/10	.03/10	.03/10	.03/10	.03/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9
	17	.02/10	.02/10	.02/10	.02/10	.02/10	.02/10	.02/10	.02/11	.02/ 9	.02/12	.02/12	.02/12	.02/12
	19	.02/10	.02/10	.02/10	.02/10	.02/10	.02/10	.02/10	.02/11	.02/12	.02/12	.02/12	.02/12	.02/12
	21	.01/10	.01/10	.01/10	.01/10	.02/10	.02/10	.02/10	.02/12	.01/12	.01/12	.01/13	.01/13	.01/13
5	7	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.06/ 7	.06/ 7	.06/ 7	.05/ 8	.05/ 8	.04/ 8	.04/ 8	.04/ 8
	9	.04/ 8	.04/ 8	.04/ 7	.04/ 7	.05/ 7	.05/ 8	.05/ 8	.05/ 8	.05/ 9	.04/ 9	.04/ 9	.04/ 9	.04/ 9
	11	.03/ 9	.03/ 9	.03/ 9	.04/ 8	.04/ 8	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.03/ 9	.03/ 9	.03/ 9
	13	.03/11	.03/11	.03/11	.03/11	.03/11	.03/11	.03/11	.03/ 9	.03/12	.03/12	.03/12	.03/12	.03/12
	15	.02/11	.02/11	.02/11	.02/11	.03/11	.03/11	.03/12	.03/12	.03/12	.02/12	.02/12	.02/12	.02/12
	17	.02/12	.02/12	.02/11	.02/11	.02/11	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12
	19	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12	.02/12
	21	.01/12	.01/12	.01/12	.01/12	.01/12	.02/12	.02/12	.02/12	.01/12	.01/12	.01/12	.01/12	.01/12
10	7	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.05/ 8	.06/ 8	.06/10	.05/12	.05/12	.04/12	.04/12	.04/12
	9	.03/ 8	.04/ 8	.04/ 7	.04/ 8	.04/ 8	.05/ 8	.05/12	.05/12	.05/12	.04/12	.04/12	.04/13	.04/13
	11	.03/ 8	.03/ 8	.03/ 8	.03/ 8	.04/ 8	.04/10	.04/12	.04/12	.04/12	.04/12	.04/13	.03/13	.03/13
	13	.02/10	.03/10	.03/10	.03/ 9	.03/10	.03/12	.03/12	.03/12	.03/12	.03/13	.03/13	.03/13	.03/13
	15	.02/13	.02/13	.02/12	.02/12	.02/12	.02/12	.03/12	.03/12	.02/13	.02/13	.02/13	.02/13	.02/13
	17	.02/13	.02/13	.02/13	.02/13	.02/12	.02/12	.02/12	.02/12	.02/13	.02/13	.02/13	.02/13	.02/13
	19	.01/13	.01/13	.01/13	.02/13	.02/12	.02/12	.02/12	.02/12	.02/13	.02/13	.02/13	.02/13	.02/13
	21	.01/13	.01/13	.01/13	.01/13	.01/13	.01/12	.01/12	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13
15	7	.03/ 7	.04/ 7	.04/ 7	.04/ 7	.05/10	.05/10	.05/10	.05/14	.05/14	.05/14	.04/14	.04/14	.04/14
	9	.03/ 8	.03/ 8	.04/ 7	.04/ 7	.04/10	.04/10	.05/14	.04/14	.04/14	.04/14	.04/14	.03/14	.03/14
	11	.03/ 8	.03/ 8	.03/ 8	.03/ 8	.03/10	.04/14	.04/14	.04/14	.03/14	.03/14	.03/14	.03/14	.03/14
	13	.02/ 9	.02/ 9	.02/ 9	.03/10	.03/10	.03/14	.03/14	.03/14	.03/14	.03/14	.02/14	.02/14	.02/14
	15	.02/10	.02/10	.02/10	.02/10	.02/10	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14
	17	.02/11	.02/11	.02/11	.02/10	.02/10	.02/14	.02/14	.02/14	.02/14	.02/14	.02/14	.01/14	.01/14
	19	.01/12	.01/12	.01/12	.01/11	.01/10	.01/14	.02/14	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14
	21	.01/13	.01/13	.01/12	.01/12	.01/10	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14
20	7	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.05/13	.05/13	.05/13	.04/13	.04/13	.03/13	.03/13	.02/13	.02/13
	9	.03/ 8	.03/ 8	.03/ 8	.04/ 7	.04/13	.04/13	.04/13	.04/13	.03/13	.03/13	.02/13	.02/13	.02/13
	11	.03/ 8	.03/ 8	.03/ 8	.03/ 8	.03/13	.03/13	.03/13	.03/13	.03/13	.02/13	.02/13	.02/13	.01/13
	13	.02/ 9	.02/ 9	.02/ 8	.02/ 8	.02/13	.02/13	.02/13	.02/13	.02/13	.02/13	.01/13	.01/13	.01/13
	15	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/13	.02/13	.02/13	.02/13	.02/13	.01/13	.01/13	.01/13	.01/13
	17	.01/10	.01/10	.01/ 9	.02/13	.02/13	.02/13	.02/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13
	19	.01/10	.01/10	.01/10	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13
	21	.01/10	.01/10	.01/10	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.01/13	.00/13
25	7	.03/ 7	.03/ 7	.03/ 7	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.03/ 9	.03/ 9	.02/ 9	.02/ 9	.02/ 9	.01/39
	9	.03/ 8	.03/ 8	.03/ 8	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.02/ 9	.02/17	.02/17	.02/42	.01/42
	11	.02/ 8	.02/ 8	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.03/ 9	.02/17	.02/17	.02/17	.01/39	.01/42	.01/42
	13	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/17	.01/17	.01/17	.01/39	.01/39	.01/39
	15	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.01/17	.01/17	.01/17	.01/33	.01/33	.01/33
	17	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/17	.01/17	.01/17	.01/33	.01/33	.01/33
	19	.01/10	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/17	.01/17	.01/30	.01/33	.01/33	.01/33
	21	.01/10	.01/10	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/17	.01/17	.01/30	.01/30	.01/33	.01/33

ASR

SHORTCRESTED

RMS YAW ACC IN DS2/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 6	.04/ 6	.05/ 6	.05/ 6	.06/ 6	.06/ 6	.06/ 6	.06/ 6	.06/ 6	.05/ 6	.04/ 6	.04/ 7	.04/ 7
	9	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.05/ 6	.05/ 6	.05/ 6	.05/ 6	.04/ 7	.04/ 7	.04/ 7	.03/ 7	.03/ 7
	11	.03/ 8	.03/ 7	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 8
	13	.02/10	.02/10	.02/10	.03/10	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.02/ 7	.02/ 8	.02/ 8	.02/ 8
	15	.02/10	.02/10	.02/10	.02/10	.02/10	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 8	.02/ 8	.02/ 8	.02/ 8
	17	.01/10	.01/10	.02/10	.02/10	.02/10	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 8	.01/ 8	.01/ 8	.01/ 8
	19	.01/10	.01/10	.01/10	.01/10	.01/10	.01/10	.01/ 7	.01/ 7	.01/ 8	.01/ 8	.01/ 8	.01/ 8	.01/ 8
	21	.01/10	.01/10	.01/10	.01/10	.01/10	.01/10	.01/ 7	.01/ 7	.01/ 8	.01/ 8	.01/ 8	.01/ 8	.01/ 8
5	7	.04/ 6	.05/ 6	.05/ 6	.06/ 6	.06/ 6	.07/ 6	.06/ 6	.06/ 6	.05/ 7	.05/ 7	.04/ 8	.03/ 8	.03/ 8
	9	.04/ 7	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.04/ 8	.04/ 8	.03/ 8	.03/ 9	.03/ 9
	11	.03/ 7	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 8	.03/ 8	.03/ 9	.03/ 9	.02/ 9	.02/ 9
	13	.02/ 8	.02/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 8	.03/ 8	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.02/ 9
	15	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 8	.02/ 9	.02/ 9	.02/ 9	.02/ 9	.01/ 9	.01/ 9
	17	.02/ 8	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 8	.02/ 9	.02/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9
	19	.01/11	.01/11	.01/ 8	.01/ 7	.01/ 7	.01/ 7	.01/ 8	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9
	21	.01/11	.01/11	.01/11	.01/ 7	.01/ 7	.01/ 8	.01/ 8	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.01/ 9
10	7	.05/ 6	.05/ 6	.06/ 6	.06/ 6	.07/ 6	.07/ 6	.06/ 6	.06/ 6	.05/ 8	.04/ 8	.03/12	.03/12	.03/12
	9	.04/ 7	.04/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.04/ 8	.04/12	.03/12	.03/12	.02/12	.02/12
	11	.03/ 7	.03/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 8	.03/12	.03/12	.03/12	.02/12	.02/12	.02/12
	13	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 8	.03/ 8	.03/12	.02/12	.02/12	.02/12	.02/13	.02/13
	15	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 8	.02/ 8	.02/12	.02/12	.02/12	.01/13	.01/13	.01/13
	17	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 8	.02/ 8	.02/12	.02/12	.01/12	.01/12	.01/13	.01/13	.01/13
	19	.01/ 8	.01/ 8	.01/ 7	.01/ 7	.02/ 8	.01/ 8	.01/12	.01/12	.01/12	.01/12	.01/13	.01/13	.01/13
	21	.01/ 8	.01/ 8	.01/ 7	.01/ 7	.01/ 8	.01/ 8	.01/12	.01/12	.01/12	.01/12	.01/13	.01/13	.01/13
15	7	.05/ 6	.06/ 6	.06/ 6	.07/ 6	.07/ 6	.07/ 6	.06/ 6	.06/10	.05/10	.04/10	.03/10	.02/14	.02/14
	9	.04/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.04/10	.03/14	.03/14	.02/14	.02/14	.02/14
	11	.03/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/10	.03/10	.03/14	.02/14	.02/14	.01/14	.01/14
	13	.03/ 8	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/10	.02/14	.02/14	.02/14	.01/14	.01/14	.01/14
	15	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/10	.02/14	.02/14	.01/14	.01/14	.01/14	.01/14
	17	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/10	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14
	19	.01/ 8	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.01/ 7	.01/10	.01/14	.01/14	.01/14	.01/14	.01/14	.01/14
	21	.01/ 8	.01/ 8	.01/ 8	.01/ 7	.01/ 7	.01/ 7	.01/10	.01/14	.01/14	.01/14	.01/14	.00/14	.00/14
20	7	.06/ 6	.06/ 6	.06/ 6	.07/ 6	.07/ 6	.07/ 6	.06/13	.05/13	.04/13	.03/13	.02/13	.01/13	.01/13
	9	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/13	.04/13	.03/13	.02/13	.01/13	.01/13	.01/13
	11	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/13	.03/13	.02/13	.02/13	.01/13	.01/13	.01/13
	13	.03/ 8	.03/ 8	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/13	.02/13	.02/13	.01/13	.01/13	.01/13	.00/13
	15	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/13	.02/13	.01/13	.01/13	.01/13	.00/13	.00/13
	17	.02/ 8	.02/ 8	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/13	.01/13	.01/13	.01/13	.00/13	.00/13	.00/13
	19	.01/ 8	.01/ 8	.02/ 8	.02/ 7	.02/ 7	.01/ 7	.01/13	.01/13	.01/13	.00/13	.00/13	.00/13	.00/13
	21	.01/ 8	.01/ 8	.01/ 8	.01/ 7	.01/ 7	.01/ 7	.01/13	.01/13	.01/13	.00/13	.00/13	.00/13	.00/13
25	7	.06/ 6	.06/ 6	.06/ 6	.07/ 6	.07/ 6	.07/ 6	.06/ 6	.05/ 9	.04/ 9	.03/ 9	.01/ 9	.01/ 9	.01/ 9
	9	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 6	.05/ 6	.04/ 9	.03/ 9	.02/ 9	.01/ 9	.01/ 9	.00/ 9
	11	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.03/ 9	.03/ 9	.02/ 9	.01/ 9	.01/ 9	.00/ 9	.00/17
	13	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 7	.03/ 9	.02/ 9	.02/ 9	.01/ 9	.01/ 9	.00/17	.00/17
	15	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 9	.02/ 9	.02/ 9	.01/ 9	.01/ 9	.00/ 9	.00/17	.00/17
	17	.02/ 8	.02/ 7	.02/ 7	.02/ 7	.02/ 7	.02/ 9	.02/ 9	.01/ 9	.01/ 9	.01/ 9	.00/ 9	.00/17	.00/17
	19	.01/ 8	.01/ 8	.02/ 7	.02/ 7	.02/ 7	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.00/ 9	.00/ 9	.00/17	.00/17
	21	.01/ 8	.01/ 8	.01/ 7	.01/ 7	.01/ 7	.01/ 9	.01/ 9	.01/ 9	.01/ 9	.00/ 9	.00/ 9	.00/17	.00/30

ASR

SHORTCRESTED

RMS LAT DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.11/ 7	.12/ 7	.13/ 7	.15/ 7	.16/ 7	.17/ 7	.18/ 7	.18/ 7	.17/ 7	.15/ 7	.14/ 7	.12/ 7	.11/ 7
	9	.13/10	.14/10	.16/10	.17/10	.19/10	.21/10	.21/10	.21/10	.20/10	.19/10	.17/10	.16/10	.15/10
	11	.14/10	.14/10	.16/10	.18/10	.20/10	.21/10	.22/10	.22/10	.21/10	.19/10	.18/10	.16/10	.15/10
	13	.13/10	.14/10	.15/10	.17/10	.19/10	.20/10	.21/10	.21/10	.20/10	.19/10	.17/10	.15/10	.15/10
	15	.13/14	.13/14	.15/16	.17/16	.19/16	.20/16	.21/16	.21/16	.20/16	.18/10	.16/10	.15/10	.14/10
	17	.12/16	.13/16	.15/16	.17/16	.19/16	.20/16	.21/16	.20/16	.19/16	.17/16	.16/16	.14/16	.13/16
	19	.12/18	.13/18	.15/18	.17/18	.19/18	.20/18	.20/18	.20/18	.19/18	.17/18	.15/18	.14/18	.13/18
	21	.12/21	.13/21	.15/21	.17/21	.19/21	.20/21	.20/21	.20/21	.19/21	.17/21	.15/21	.13/21	.13/21
5	7	.09/ 7	.10/ 7	.11/ 7	.13/ 7	.16/ 8	.18/ 8	.19/ 8	.20/ 8	.20/ 9	.19/ 9	.18/ 9	.17/10	.17/10
	9	.12/10	.12/10	.14/10	.16/10	.19/10	.21/10	.23/10	.24/10	.23/10	.23/10	.21/10	.20/10	.20/10
	11	.12/10	.13/10	.15/10	.17/10	.19/10	.21/10	.23/10	.23/10	.23/10	.22/10	.21/10	.19/10	.19/10
	13	.12/11	.13/10	.14/10	.17/10	.19/10	.21/10	.22/10	.22/10	.22/10	.21/10	.19/10	.18/10	.17/10
	15	.12/16	.13/16	.14/16	.16/16	.18/16	.20/16	.21/16	.21/15	.21/15	.19/15	.18/10	.16/10	.16/10
	17	.12/16	.12/16	.14/16	.16/16	.18/16	.20/17	.21/17	.21/17	.20/17	.19/17	.17/17	.15/17	.15/17
	19	.11/18	.12/18	.14/18	.16/18	.18/18	.20/19	.21/19	.21/19	.20/19	.18/19	.16/20	.15/20	.14/20
	21	.11/21	.12/21	.14/21	.16/21	.18/21	.20/21	.21/21	.21/21	.20/21	.18/22	.16/22	.14/22	.14/22
10	7	.08/ 7	.08/ 7	.10/ 7	.12/ 8	.16/ 8	.19/10	.22/10	.24/10	.25/10	.24/10	.23/10	.22/10	.21/10
	9	.10/10	.10/10	.12/10	.15/10	.18/10	.21/10	.24/10	.25/10	.25/10	.25/10	.23/10	.22/10	.21/13
	11	.11/11	.11/11	.13/10	.16/10	.18/10	.21/10	.23/10	.24/10	.24/10	.23/10	.22/13	.20/13	.20/13
	13	.11/12	.11/12	.13/12	.16/11	.18/10	.20/14	.22/14	.23/14	.23/14	.22/14	.20/14	.19/14	.18/14
	15	.11/16	.11/16	.13/16	.16/16	.18/16	.20/16	.21/16	.22/16	.22/16	.20/16	.19/16	.17/16	.17/16
	17	.11/18	.11/18	.13/18	.15/18	.18/18	.20/18	.21/18	.21/18	.21/18	.20/18	.18/18	.16/19	.16/19
	19	.10/18	.11/18	.13/18	.15/19	.18/20	.20/20	.21/20	.21/20	.20,20	.19/20	.17/21	.16/21	.15/21
	21	.11/21	.11/21	.13/21	.16/21	.18/21	.20/21	.21/21	.21/22	.20/22	.19/22	.17/22	.15/23	.15/23
15	7	.06/ 7	.07/ 7	.09/ 8	.12/10	.16/10	.20/10	.24/10	.27/10	.29/10	.29/10	.28/14	.28/14	.27/14
	9	.08/10	.09/10	.11/10	.14/10	.17/10	.21/10	.24/10	.26/14	.27/14	.27/14	.26/14	.25/14	.25/17
	11	.09/11	.10/11	.12/11	.15/10	.18/10	.21/10	.23/14	.25/14	.25/14	.25/14	.24/17	.22/17	.22/17
	13	.10/13	.10/13	.12/13	.15/13	.18/14	.20/14	.22/14	.24/14	.24/14	.23/17	.22/17	.20/17	.20/17
	15	.10/16	.10/16	.12/16	.15/16	.18/16	.20/16	.22/17	.23/17	.23/17	.22/17	.20/17	.19/17	.19/17
	17	.10/18	.10/18	.12/18	.15/18	.18/18	.20/18	.21/17	.22/17	.22/20	.21/20	.19/20	.18/20	.18/20
	19	.10/18	.10/18	.12/18	.15/19	.18/20	.20/21	.21/21	.22/21	.22/21	.20/21	.19/22	.17/22	.17/22
	21	.10/21	.11/21	.13/21	.15/21	.18/21	.20/21	.21/22	.22/22	.21/22	.20/23	.19/23	.17/24	.16/24
20	7	.06/ 8	.06/ 8	.08/ 8	.11/13	.15/13	.20/13	.25/13	.29/13	.31/13	.32/13	.32/13	.32/13	.32/63
	9	.07/10	.08/10	.10/10	.13/10	.17/13	.21/13	.25/13	.28/19	.30/19	.30/19	.30/19	.30/19	.30/19
	11	.08/12	.09/12	.11/11	.14/13	.17/13	.21/13	.24/19	.27/19	.28/19	.28/19	.28/19	.27/23	.27/23
	13	.09/13	.10/13	.12/13	.14/13	.17/13	.21/19	.24/19	.26/19	.26/19	.26/23	.26/23	.25/23	.25/23
	15	.09/14	.10/14	.12/14	.14/16	.18/16	.21/19	.23/19	.25/19	.25/23	.25/23	.24/23	.24/23	.23/23
	17	.09/18	.10/18	.12/18	.15/18	.17/19	.20/19	.23/19	.24/23	.25/23	.24/23	.23/23	.22/23	.22/23
	19	.09/18	.10/18	.12/18	.15/20	.17/19	.20/19	.22/23	.24/23	.24/23	.23/23	.22/23	.21/23	.21/23
	21	.09/21	.10/21	.12/21	.15/21	.18/21	.20/23	.22/23	.23/23	.24/23	.23/23	.22/23	.20/26	.20/26
25	7	.05/ 8	.05/ 8	.08/ 9	.12/17	.17/17	.23/17	.28/17	.33/17	.35/17	.35/17	.35/17	.34/17	.34/17
	9	.06/10	.07/10	.09/10	.13/17	.18/17	.23/17	.28/17	.32/17	.35/17	.36/17	.36/17	.36/17	.36/17
	11	.07/12	.08/12	.10/11	.14/17	.18/17	.23/17	.27/17	.31/17	.33/17	.34/17	.34/17	.33/17	.33/17
	13	.08/14	.09/14	.11/14	.14/17	.18/17	.22/17	.26/17	.29/17	.31/17	.31/17	.31/17	.31/24	.30/24
	15	.08/14	.09/14	.11/16	.14/17	.18/17	.22/17	.25/17	.28/17	.29/17	.30/24	.29/24	.29/24	.28/24
	17	.08/18	.09/18	.11/18	.14/17	.18/17	.21/17	.25/17	.27/24	.28/24	.28/24	.28/24	.27/30	.27/30
	19	.08/18	.09/18	.11/18	.14/20	.18/17	.21/24	.24/24	.26/24	.27/24	.27/24	.26/30	.26/30	.25/30
	21	.08/21	.09/21	.11/21	.14/21	.18/24	.21/24	.24/24	.26/24	.26/24	.26/30	.25/30	.24/30	.24/33

ASR

SHORTCRESTED

RMS LAT VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.10/ 7	.11/ 7	.12/ 7	.14/ 7	.16/ 7	.17/ 7	.17/ 7	.17/ 7	.16/ 7	.14/ 7	.13/ 7	.11/ 7	.10/ 7
	9	.11/ 9	.11/ 9	.12/ 9	.14/ 9	.16/ 9	.17/ 9	.17/ 9	.17/ 9	.16/10	.15/10	.13/10	.12/10	.11/10
	11	.10/10	.10/10	.11/10	.13/10	.14/10	.15/10	.15/10	.15/10	.15/10	.14/10	.12/10	.11/10	.11/10
	13	.08/10	.09/10	.10/10	.11/10	.12/10	.13/10	.13/10	.13/10	.13/10	.12/10	.11/10	.10/10	.09/10
	15	.07/10	.08/10	.08/10	.10/10	.11/10	.11/10	.12/10	.12/10	.11/10	.10/10	.09/10	.08/10	.08/10
	17	.06/14	.07/14	.08/14	.09/16	.09/16	.10/16	.10/16	.10/10	.10/10	.09/10	.08/10	.07/10	.07/10
	19	.06/16	.06/16	.07/16	.08/16	.08/16	.09/16	.09/16	.09/16	.09/16	.08/10	.07/10	.06/10	.06/10
	21	.06/18	.06/18	.06/18	.07/18	.08/18	.08/18	.08/18	.08/18	.08/18	.07/18	.06/10	.06/10	.06/10
5	7	.10/ 7	.10/ 7	.12/ 7	.14/ 7	.15/ 7	.17/ 7	.18/ 7	.18/ 8	.17/ 8	.16/ 8	.14/ 9	.13/ 9	.12/ 9
	9	.10/ 8	.11/ 9	.12/ 9	.14/ 9	.15/10	.17/10	.18/10	.18/10	.17/10	.16/10	.15/10	.14/10	.13/10
	11	.10/10	.10/10	.11/10	.13/10	.14/10	.15/10	.16/10	.16/10	.15/10	.14/10	.13/10	.12/10	.12/10
	13	.08/10	.09/10	.10/10	.11/10	.12/10	.13/10	.14/10	.14/10	.13/10	.12/10	.11/10	.10/10	.10/10
	15	.07/11	.08/10	.09/10	.10/10	.11/10	.12/10	.12/10	.12/10	.11/10	.11/10	.10/10	.09/10	.08/10
	17	.06/11	.07/10	.08/10	.09/10	.10/10	.10/10	.11/10	.11/10	.10/10	.09/10	.08/10	.08/10	.07/10
	19	.06/16	.06/16	.07/16	.08/16	.09/16	.09/16	.09/16	.09/16	.09/10	.08/10	.07/10	.07/10	.06/10
	21	.05/18	.05/18	.06/18	.07/18	.08/18	.08/18	.09/18	.08/18	.08/19	.07/19	.07/19	.06/10	.06/10
10	7	.09/ 7	.10/ 7	.11/ 7	.13/ 7	.15/ 8	.17/ 8	.18/10	.19/10	.18/10	.17/10	.15/10	.14/10	.13/10
	9	.10/ 8	.10/ 8	.11/ 8	.13/ 9	.15/10	.17/10	.17/10	.18/10	.17/10	.16/10	.14/10	.13/10	.12/10
	11	.09/10	.09/10	.11/10	.12/10	.14/10	.15/10	.15/10	.15/10	.15/10	.14/10	.12/10	.11/10	.11/10
	13	.08/11	.08/11	.09/11	.11/10	.12/10	.13/10	.13/10	.13/10	.13/10	.12/10	.11/10	.09/13	.09/13
	15	.07/12	.07/12	.08/11	.09/11	.11/10	.11/10	.12/10	.12/10	.11/10	.10/10	.09/10	.08/13	.08/13
	17	.06/12	.07/12	.07/16	.08/16	.09/16	.10/16	.10/16	.10/16	.10/16	.09/15	.08/15	.07/15	.07/15
	19	.06/16	.06/16	.07/16	.08/16	.08/16	.09/16	.09/16	.09/16	.09/18	.08/18	.07/18	.06/19	.06/19
	21	.05/18	.05/18	.06/18	.07/18	.08/18	.08/18	.08/19	.08/20	.08/20	.07/20	.06/20	.06/20	.05/20
15	7	.09/ 7	.09/ 7	.11/ 7	.13/ 7	.15/10	.16/10	.17/10	.18/10	.17/10	.15/10	.13/10	.12/10	.11/10
	9	.09/ 8	.10/ 8	.11/ 8	.13/10	.14/10	.16/10	.16/10	.16/10	.16/10	.14/10	.12/10	.11/14	.10/14
	11	.08/10	.09/10	.10/10	.12/10	.13/10	.14/10	.15/10	.14/10	.14/10	.12/14	.11/14	.09/14	.09/14
	13	.08/12	.08/12	.09/11	.10/10	.12/10	.12/10	.13/10	.13/14	.12/14	.11/14	.09/14	.08/17	.08/17
	15	.07/13	.07/13	.08/13	.09/13	.10/14	.11/14	.11/14	.11/14	.11/14	.10/14	.08/17	.07/17	.07/17
	17	.06/13	.06/13	.07/13	.08/16	.09/16	.10/14	.10/14	.10/14	.09/17	.09/17	.07/17	.07/17	.06/17
	19	.05/18	.06/18	.06/18	.07/18	.08/18	.09/17	.09/17	.09/17	.08/17	.08/17	.07/20	.06/20	.06/20
	21	.05/18	.05/18	.06/18	.07/18	.08/18	.08/19	.08/20	.08/20	.08/20	.07/20	.06/20	.05/20	.05/20
20	7	.08/ 7	.09/ 7	.10/ 7	.12/ 7	.14/13	.15/13	.15/13	.15/13	.14/13	.12/13	.10/13	.08/13	.07/13
	9	.09/ 8	.09/ 8	.10/ 8	.12/ 9	.13/ 9	.14/13	.15/13	.14/13	.13/13	.12/13	.10/13	.09/19	.08/19
	11	.08/10	.09/10	.10/10	.11/10	.12/10	.13/13	.14/13	.13/13	.12/13	.11/19	.10/19	.08/19	.08/19
	13	.07/13	.08/13	.09/12	.10/12	.11/13	.12/13	.12/13	.12/13	.11/19	.10/19	.09/19	.08/23	.07/23
	15	.07/14	.07/13	.08/13	.09/13	.10/13	.11/13	.11/13	.11/19	.10/19	.09/19	.08/23	.07/23	.07/23
	17	.06/14	.06/14	.07/14	.08/14	.09/13	.10/19	.10/19	.10/19	.09/19	.08/23	.07/23	.07/23	.06/23
	19	.05/14	.06/14	.06/18	.07/18	.08/18	.09/19	.09/19	.09/19	.08/19	.08/23	.07/23	.06/23	.06/23
	21	.05/18	.05/18	.06/18	.07/18	.07/19	.08/19	.08/19	.08/23	.08/23	.07/23	.06/23	.06/23	.05/23
25	7	.08/ 7	.08/ 7	.10/ 7	.11/ 9	.13/17	.14/17	.15/17	.14/17	.13/17	.11/17	.09/17	.07/17	.06/17
	9	.08/ 8	.09/ 8	.10/ 9	.12/ 9	.13/17	.14/17	.14/17	.14/17	.13/17	.11/17	.09/17	.08/17	.07/17
	11	.08/10	.08/10	.09/10	.11/10	.12/17	.13/17	.13/17	.13/17	.12/17	.11/17	.09/17	.08/17	.07/17
	13	.07/13	.07/13	.08/13	.10/13	.11/17	.12/17	.12/17	.12/17	.11/17	.10/17	.08/17	.07/17	.07/17
	15	.06/14	.07/14	.08/14	.09/17	.10/17	.11/17	.11/17	.11/17	.10/17	.09/17	.08/17	.07/17	.06/17
	17	.06/14	.06/14	.07/14	.08/17	.09/17	.10/17	.10/17	.10/17	.09/17	.08/17	.07/17	.06/24	.06/24
	19	.05/14	.05/16	.06/16	.07/17	.08/17	.09/17	.09/17	.09/17	.09/17	.08/17	.07/24	.06/24	.06/24
	21	.05/18	.05/18	.06/18	.07/17	.07/17	.08/17	.08/17	.08/17	.08/24	.07/24	.06/24	.06/30	.05/30

ASR

SHORTCRESTED
RMS LAT ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
(ACC. X 100)
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.30/ 7	.32/ 7	.38/ 6	.44/ 6	.50/ 6	.55/ 6	.56/ 6	.55/ 6	.52/ 6	.46/ 6	.39/ 7	.33/ 7	.31/ 7
	9	.28/ 8	.30/ 8	.34/ 8	.39/ 7	.43/ 7	.47/ 7	.48/ 7	.47/ 7	.45/ 7	.41/ 7	.36/ 7	.31/ 8	.30/ 8
	11	.23/ 9	.24/10	.28/10	.31/10	.35/10	.38/10	.39/10	.39/10	.37/10	.33/10	.30/10	.27/10	.25/10
	13	.19/10	.20/10	.22/10	.25/10	.28/10	.30/10	.31/10	.31/10	.30/10	.27/10	.24/10	.22/10	.21/10
	15	.15/10	.16/10	.18/10	.21/10	.23/10	.25/10	.25/10	.25/10	.24/10	.22/10	.20/10	.18/10	.17/10
	17	.13/10	.13/10	.15/10	.17/10	.19/10	.20/10	.21/10	.21/10	.20/10	.18/10	.16/10	.15/10	.14/10
	19	.11/10	.11/10	.13/10	.14/10	.16/10	.17/10	.18/10	.17/10	.17/10	.15/10	.14/10	.12/10	.12/10
	21	.09/10	.09/10	.11/10	.12/10	.13/10	.14/10	.15/10	.15/10	.14/10	.13/10	.11/10	.10/10	.10/10
5	7	.34/ 7	.36/ 7	.41/ 6	.48/ 6	.53/ 6	.56/ 6	.57/ 7	.55/ 7	.51/ 7	.45/ 8	.38/ 8	.32/ 8	.30/ 8
	9	.31/ 7	.32/ 7	.36/ 7	.41/ 7	.45/ 7	.48/ 8	.49/ 8	.47/ 9	.44/10	.40/10	.35/10	.31/10	.29/10
	11	.26/ 9	.27/ 9	.30/10	.34/10	.37/10	.39/10	.39/10	.38/10	.36/10	.32/10	.29/10	.26/10	.24/10
	13	.21/10	.22/10	.24/10	.27/10	.30/10	.31/10	.32/10	.31/10	.29/10	.26/10	.23/10	.21/10	.20/10
	15	.17/10	.18/10	.20/10	.22/10	.24/10	.25/10	.26/10	.25/10	.23/10	.21/10	.19/10	.17/10	.16/10
	17	.14/10	.15/10	.16/10	.18/10	.20/10	.21/10	.21/10	.21/10	.19/10	.17/10	.15/10	.14/10	.13/10
	19	.12/10	.12/10	.14/10	.15/10	.17/10	.18/10	.18/10	.17/10	.16/10	.15/10	.13/10	.11/10	.11/10
	21	.10/10	.11/10	.12/10	.13/10	.14/10	.15/10	.15/10	.15/10	.14/10	.12/10	.11/10	.10/10	.09/10
10	7	.37/ 7	.39/ 7	.44/ 6	.50/ 6	.55/ 6	.57/ 6	.57/ 7	.54/10	.49/10	.42/10	.35/10	.29/10	.27/10
	9	.33/ 7	.35/ 7	.39/ 7	.43/ 7	.47/ 8	.48/ 8	.48/10	.46/10	.41/10	.36/10	.30/10	.26/10	.24/10
	11	.28/ 8	.29/ 8	.32/ 8	.35/ 9	.38/10	.39/10	.39/10	.37/10	.33/10	.29/10	.24/10	.21/10	.19/10
	13	.23/10	.23/10	.26/10	.28/10	.30/10	.31/10	.31/10	.29/10	.27/10	.23/10	.20/10	.17/10	.15/10
	15	.18/11	.19/10	.21/10	.23/10	.25/10	.26/10	.25/10	.24/10	.22/10	.19/10	.16/10	.14/10	.13/10
	17	.15/11	.16/11	.17/10	.19/10	.20/10	.21/10	.21/10	.20/10	.18/10	.16/10	.13/10	.11/10	.10/10
	19	.13/11	.13/11	.14/11	.16/10	.17/10	.18/10	.17/10	.17/10	.15/10	.13/10	.11/10	.09/10	.09/10
	21	.11/11	.11/11	.12/11	.13/10	.15/10	.15/10	.15/10	.14/10	.13/10	.11/10	.09/10	.08/10	.07/10
15	7	.39/ 7	.41/ 7	.46/ 6	.52/ 6	.56/ 7	.57/10	.55/10	.51/10	.44/10	.36/10	.28/10	.21/10	.18/10
	9	.35/ 7	.37/ 7	.40/ 7	.44/ 7	.47/ 7	.48/10	.46/10	.42/10	.37/10	.30/10	.24/10	.18/10	.16/10
	11	.29/ 8	.30/ 8	.33/ 8	.36/ 8	.38/10	.38/10	.37/10	.34/10	.29/10	.24/10	.19/10	.15/10	.13/14
	13	.24/ 8	.24/ 9	.27/10	.29/10	.31/10	.31/10	.30/10	.27/10	.24/10	.20/10	.16/10	.12/14	.11/14
	15	.19/11	.20/11	.22/10	.24/10	.25/10	.25/10	.24/10	.22/10	.20/10	.16/10	.13/10	.10/14	.09/14
	17	.16/12	.16/12	.18/11	.20/10	.21/10	.21/10	.20/10	.19/10	.16/10	.14/10	.11/14	.09/14	.08/17
	19	.13/13	.14/12	.15/12	.16/10	.17/10	.18/10	.17/10	.16/10	.14/10	.11/10	.09/14	.07/17	.07/17
	21	.11/13	.12/13	.13/12	.14/11	.15/10	.15/10	.14/10	.13/10	.12/10	.10/10	.08/17	.06/17	.06/17
20	7	.41/ 7	.43/ 7	.48/ 6	.53/ 6	.56/ 7	.56/ 7	.53/ 7	.47/ 7	.39/13	.30/13	.21/13	.14/13	.11/13
	9	.37/ 7	.38/ 7	.42/ 7	.45/ 7	.47/ 7	.47/ 7	.44/ 8	.39/ 8	.33/13	.25/13	.18/13	.13/13	.10/13
	11	.30/ 8	.31/ 8	.34/ 8	.37/ 8	.38/ 8	.38/ 9	.36/ 9	.32/13	.27/13	.21/13	.15/13	.11/19	.09/19
	13	.25/ 8	.25/ 8	.28/ 9	.30/10	.31/10	.31/10	.29/10	.26/13	.22/13	.17/13	.13/13	.09/19	.08/19
	15	.20/11	.21/11	.23/10	.24/10	.25/10	.25/10	.24/13	.21/13	.18/13	.14/13	.11/19	.08/19	.07/19
	17	.17/13	.17/13	.19/12	.20/11	.21/13	.21/13	.20/13	.18/13	.15/13	.12/19	.09/19	.07/23	.06/23
	19	.14/13	.14/13	.16/13	.17/13	.18/13	.18/13	.17/13	.15/13	.13/19	.10/19	.08/19	.06/23	.06/23
	21	.12/14	.12/13	.13/13	.14/13	.15/13	.15/13	.14/13	.13/19	.11/19	.09/19	.07/23	.06/23	.05/23
25	7	.41/ 7	.43/ 7	.48/ 6	.53/ 6	.56/ 6	.56/ 9	.52/ 9	.46/ 9	.38/ 9	.28/ 9	.19/17	.12/17	.09/17
	9	.37/ 7	.39/ 7	.42/ 7	.46/ 9	.48/ 9	.47/ 9	.44/17	.38/17	.31/17	.24/17	.16/17	.11/17	.08/17
	11	.31/ 8	.32/ 8	.35/ 9	.37/ 9	.39/ 9	.38/ 9	.36/17	.31/17	.26/17	.20/17	.14/17	.09/17	.07/17
	13	.25/ 9	.26/ 9	.28/ 9	.30/ 9	.31/ 9	.31/ 9	.29/17	.26/17	.21/17	.16/17	.12/17	.08/17	.07/17
	15	.21/ 9	.21/ 9	.23/10	.25/10	.26/10	.25/17	.24/17	.21/17	.18/17	.14/17	.10/17	.07/17	.06/17
	17	.17/13	.18/13	.19/13	.20/13	.21/13	.21/17	.20/17	.18/17	.15/17	.12/17	.09/17	.06/17	.05/17
	19	.14/14	.15/13	.16/13	.17/13	.18/17	.18/17	.17/17	.15/17	.13/17	.10/17	.08/17	.06/17	.05/17

ASR

SHORTCRESTED
RMS VER DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.39/ 7	.39/ 7	.38/ 7	.38/ 7	.38/ 7	.38/ 7	.38/ 6	.38/ 7	.38/ 7	.39/ 7	.39/ 7	.39/ 7	.39/ 7
	9	.42/ 8	.41/ 8	.40/ 8	.39/ 8	.38/ 8	.37/ 8	.36/ 8	.37/ 8	.38/ 8	.39/ 8	.40/ 8	.41/ 8	.41/ 8
	11	.40/10	.39/10	.38/10	.37/10	.35/10	.34/10	.34/10	.34/10	.35/10	.37/10	.38/10	.39/10	.39/10
	13	.37/12	.36/12	.35/12	.34/12	.33/13	.32/13	.31/13	.32/13	.33/13	.34/12	.35/12	.36/12	.36/12
	15	.34/14	.34/14	.33/14	.32/14	.31/14	.30/14	.30/14	.30/14	.31/14	.32/14	.33/14	.34/14	.34/14
	17	.32/16	.31/16	.31/16	.30/16	.29/15	.28/16	.28/16	.28/16	.29/16	.30/16	.31/16	.31/16	.32/16
	19	.30/18	.30/18	.29/18	.29/18	.28/18	.27/18	.27/18	.27/18	.28/18	.29/18	.29/18	.30/18	.30/18
	21	.29/21	.29/21	.28/21	.28/21	.27/21	.27/21	.27/21	.27/21	.27/21	.28/21	.28/21	.29/21	.29/21
5	7	.41/ 7	.41/ 7	.40/ 7	.39/ 7	.38/ 7	.37/ 7	.36/ 7	.35/ 8	.34/ 8	.33/ 9	.32/ 9	.32/ 9	.32/ 9
	9	.45/ 8	.44/ 8	.43/ 8	.41/ 8	.39/ 8	.37/ 8	.35/ 9	.34/10	.34/10	.35/10	.35/10	.36/10	.36/10
	11	.42/10	.42/10	.40/10	.38/10	.36/10	.34/10	.33/10	.33/11	.33/11	.34/11	.34/12	.35/12	.35/12
	13	.38/12	.38/12	.37/12	.35/13	.33/13	.32/13	.31/13	.31/13	.31/13	.32/13	.33/13	.33/13	.33/13
	15	.35/14	.35/14	.34/14	.33/14	.31/14	.30/14	.29/15	.29/15	.29/15	.30/15	.31/15	.31/15	.32/15
	17	.33/16	.32/16	.32/16	.31/16	.29/16	.29/17	.28/17	.28/17	.28/17	.29/17	.29/17	.30/17	.30/17
	19	.31/18	.31/18	.30/18	.29/18	.28/18	.28/18	.27/18	.27/19	.27/19	.28/20	.28/20	.29/20	.29/20
	21	.29/21	.29/21	.29/21	.28/21	.27/21	.27/21	.27/21	.27/21	.27/22	.27/22	.28/22	.28/22	.28/22
10	7	.40/ 7	.40/ 7	.40/ 7	.39/ 7	.37/ 7	.36/ 7	.34/ 7	.32/10	.31/13	.29/13	.28/13	.27/13	.27/13
	9	.46/ 8	.45/ 8	.44/ 8	.42/ 8	.39/ 8	.37/ 8	.35/10	.33/13	.32/13	.32/13	.32/13	.31/13	.31/13
	11	.43/ 9	.43/ 9	.42/10	.39/10	.37/10	.35/10	.33/12	.32/13	.31/13	.31/13	.32/13	.32/13	.32/13
	13	.40/12	.39/12	.38/12	.36/13	.34/13	.32/13	.31/13	.30/14	.30/14	.30/15	.30/15	.31/15	.31/15
	15	.36/14	.36/14	.35/14	.33/14	.32/14	.30/15	.29/16	.29/16	.29/16	.29/17	.29/17	.30/17	.30/17
	17	.33/16	.33/16	.32/16	.31/16	.30/17	.29/18	.28/18	.28/18	.28/18	.28/18	.28/19	.29/20	.29/20
	19	.31/18	.31/18	.31/18	.30/18	.29/18	.28/18	.27/20	.27/20	.27/21	.27/21	.27/21	.28/22	.28/22
	21	.30/21	.30/21	.29/21	.29/21	.28/21	.27/21	.27/21	.26/22	.26/22	.27/22	.27/23	.27/23	.27/24
15	7	.40/ 7	.40/ 7	.40/ 7	.39/ 7	.38/ 7	.36/ 7	.34/10	.32/14	.29/14	.27/14	.25/14	.24/14	.23/20
	9	.48/ 8	.47/ 8	.46/ 8	.44/ 8	.41/ 8	.38/ 8	.35/10	.33/14	.31/14	.29/17	.29/17	.28/17	.28/17
	11	.46/ 8	.45/ 8	.43/ 8	.41/10	.39/10	.36/10	.33/14	.31/14	.30/17	.29/20	.29/20	.29/20	.29/20
	13	.41/13	.41/13	.40/13	.38/13	.35/13	.33/14	.31/14	.30/17	.29/17	.29/20	.29/20	.29/20	.29/20
	15	.38/14	.37/14	.36/14	.35/14	.33/14	.31/14	.29/17	.28/17	.28/20	.28/20	.28/20	.28/20	.28/20
	17	.35/16	.34/16	.33/16	.32/16	.31/17	.29/17	.28/17	.27/20	.27/20	.27/20	.27/20	.28/20	.28/20
	19	.32/18	.32/18	.31/18	.30/18	.29/18	.28/20	.27/21	.27/21	.27/20	.27/20	.27/20	.27/20	.27/20
	21	.31/21	.31/21	.30/21	.29/21	.28/21	.27/21	.27/21	.26/22	.26/23	.26/24	.26/25	.27/25	.27/25
20	7	.40/ 8	.40/ 8	.40/ 8	.40/ 8	.39/ 8	.37/13	.35/13	.32/13	.29/13	.26/13	.24/13	.23/13	.22/13
	9	.51/ 8	.51/ 8	.49/ 8	.47/ 8	.44/ 8	.40/ 8	.36/13	.33/13	.30/13	.28/13	.27/19	.27/27	.27/27
	11	.49/ 8	.49/ 8	.47/ 8	.44/ 8	.41/ 8	.38/13	.34/13	.32/19	.30/23	.29/23	.28/23	.28/23	.28/23
	13	.44/ 8	.44/ 8	.42/ 8	.40/13	.37/13	.35/13	.32/13	.30/23	.29/23	.28/23	.28/23	.28/26	.28/26
	15	.40/14	.40/14	.38/14	.37/14	.34/14	.32/13	.30/19	.29/23	.28/23	.27/26	.27/26	.27/26	.27/26
	17	.37/16	.36/16	.35/16	.34/16	.32/17	.30/19	.29/19	.28/23	.27/23	.27/26	.27/26	.27/26	.27/26
	19	.34/18	.34/18	.33/18	.32/18	.30/19	.29/19	.28/23	.27/23	.26/26	.26/26	.26/27	.26/27	.27/27
	21	.32/21	.32/21	.31/21	.30/21	.29/21	.28/21	.27/23	.26/23	.26/26	.26/27	.26/27	.26/27	.26/27
25	7	.40/ 8	.40/ 8	.40/ 8	.40/ 8	.40/ 8	.38/17	.36/17	.34/17	.31/17	.28/17	.26/17	.25/17	.24/17
	9	.55/ 8	.55/ 8	.53/ 8	.50/ 8	.47/ 9	.43/17	.39/17	.35/17	.32/17	.30/17	.29/17	.29/17	.29/17
	11	.54/ 8	.53/ 8	.51/ 8	.48/ 9	.44/ 9	.40/17	.36/17	.33/17	.31/17	.30/17	.29/17	.29/33	.29/33
	13	.48/ 9	.48/ 9	.46/ 9	.43/ 9	.40/17	.37/17	.34/17	.31/17	.29/17	.29/33	.29/33	.29/33	.29/33
	15	.43/ 9	.43/ 9	.41/14	.39/14	.37/17	.34/17	.31/17	.29/17	.28/33	.28/33	.28/33	.28/33	.28/33
	17	.39/16	.39/16	.38/16	.36/17	.34/17	.32/17	.30/17	.28/24	.27/33	.27/33	.27/33	.27/33	.27/33
	19	.36/18	.36/18	.35/18	.33/18	.32/18	.30/17	.28/24	.27/24	.27/33	.27/33	.27/33	.27/33	.27/33
	21	.34/21	.33/21	.33/21	.31/21	.30/21	.29/24	.28/24	.27/24	.26/33	.26/33	.26/33	.27/33	.27/33

ASR

SHORTCRESTED
RMS VER VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.37/ 7	.37/ 7	.37/ 7	.37/ 6	.38/ 6	.39/ 6	.39/ 6	.39/ 6	.39/ 6	.39/ 6	.38/ 7	.38/ 7	.37/ 7
	9	.35/ 7	.35/ 7	.34/ 7	.34/ 7	.33/ 7	.33/ 7	.33/ 7	.33/ 7	.34/ 7	.34/ 7	.35/ 7	.35/ 7	.35/ 7
	11	.30/ 8	.30/ 8	.29/ 8	.28/ 8	.27/ 8	.27/ 8	.27/ 8	.27/ 8	.28/ 8	.29/ 8	.29/ 8	.30/ 8	.30/ 8
	13	.25/ 9	.25/ 9	.24/ 9	.23/ 9	.23/10	.22/10	.22/10	.22/10	.23/10	.24/ 9	.24/ 9	.25/ 9	.25/ 9
	15	.21/10	.21/10	.20/10	.20/10	.19/11	.19/12	.19/12	.19/12	.19/11	.20/10	.20/10	.21/10	.21/10
	17	.18/13	.18/13	.17/13	.17/14	.16/14	.16/14	.16/14	.16/14	.16/14	.17/14	.17/13	.18/13	.18/13
	19	.15/16	.15/16	.15/16	.15/16	.14/16	.14/16	.14/16	.14/16	.14/16	.15/16	.15/16	.15/16	.15/16
	21	.14/18	.13/18	.13/18	.13/18	.13/18	.12/18	.12/18	.12/18	.13/18	.13/18	.13/18	.13/18	.14/18
5	7	.46/ 7	.45/ 7	.44/ 7	.43/ 7	.41/ 7	.39/ 6	.37/ 6	.34/ 6	.31/ 7	.29/ 8	.27/ 9	.25/ 9	.24/ 9
	9	.44/ 7	.44/ 7	.42/ 7	.40/ 7	.38/ 7	.35/ 7	.32/ 7	.29/ 8	.27/ 9	.26/ 9	.25/10	.24/10	.24/10
	11	.37/ 7	.37/ 7	.36/ 7	.34/ 7	.31/ 7	.29/ 7	.26/ 9	.24/10	.23/10	.22/10	.22/10	.21/10	.21/10
	13	.31/ 8	.31/ 8	.29/ 8	.28/ 8	.26/10	.24/10	.22/10	.20/11	.19/11	.19/11	.19/11	.18/11	.18/11
	15	.26/ 8	.25/10	.24/10	.23/10	.22/11	.20/12	.18/13	.17/13	.17/13	.16/13	.16/13	.16/13	.16/13
	17	.22/11	.21/11	.21/13	.20/13	.18/14	.17/14	.16/14	.15/14	.14/14	.14/14	.14/14	.14/14	.14/14
	19	.18/14	.18/16	.18/16	.17/16	.16/16	.15/16	.14/16	.13/17	.13/17	.12/17	.12/17	.12/17	.12/17
	21	.16/18	.16/18	.15/18	.15/18	.14/18	.13/18	.12/18	.12/18	.11/18	.11/19	.11/19	.11/19	.11/19
10	7	.50/ 7	.49/ 7	.48/ 7	.46/ 7	.44/ 7	.40/ 7	.36/ 7	.31/ 6	.27/ 6	.23/13	.19/13	.17/13	.16/13
	9	.51/ 7	.50/ 7	.48/ 7	.45/ 7	.41/ 7	.37/ 7	.32/ 7	.28/ 7	.24/13	.21/13	.18/13	.17/13	.16/13
	11	.43/ 8	.43/ 7	.41/ 7	.38/ 7	.35/ 7	.31/ 7	.27/ 7	.23/12	.20/13	.18/13	.16/13	.16/13	.15/13
	13	.36/ 8	.35/ 8	.34/ 8	.32/ 8	.29/ 8	.26/10	.22/12	.20/13	.17/13	.16/13	.15/13	.14/13	.14/13
	15	.30/ 8	.29/ 8	.28/ 8	.26/ 8	.24/11	.21/12	.19/13	.17/13	.15/13	.14/14	.13/14	.12/15	.12/15
	17	.25/ 8	.25/ 8	.24/ 8	.22/13	.20/14	.18/14	.16/14	.14/15	.13/16	.12/16	.11/16	.11/17	.11/17
	19	.21/14	.21/14	.20/14	.19/16	.17/16	.16/16	.14/17	.13/17	.12/18	.11/18	.10/18	.10/19	.10/19
	21	.18/18	.18/18	.17/18	.16/18	.15/18	.14/18	.12/18	.11/19	.10/20	.10/20	.09/20	.09/21	.09/21
15	7	.53/ 7	.53/ 7	.52/ 7	.50/ 7	.47/ 7	.43/ 7	.37/ 7	.31/ 7	.25/ 6	.19/10	.14/10	.11/14	.10/14
	9	.58/ 8	.57/ 8	.55/ 8	.51/ 7	.47/ 7	.41/ 7	.35/ 7	.28/ 7	.22/10	.18/14	.14/17	.12/17	.11/17
	11	.50/ 8	.50/ 8	.47/ 8	.44/ 8	.39/ 8	.34/ 7	.29/ 7	.24/10	.19/14	.15/17	.13/17	.11/17	.11/20
	13	.42/ 8	.41/ 8	.39/ 8	.36/ 8	.33/ 8	.28/ 7	.24/10	.20/14	.16/14	.13/17	.12/20	.11/20	.10/20
	15	.34/ 8	.34/ 8	.32/ 8	.30/ 8	.27/ 8	.24/ 8	.20/14	.17/14	.14/17	.12/20	.11/20	.10/20	.09/20
	17	.29/ 8	.28/ 8	.27/ 8	.25/ 8	.23/ 8	.20/14	.17/14	.14/17	.12/20	.11/20	.10/20	.09/20	.09/20
	19	.24/ 8	.24/ 8	.23/ 8	.21/ 8	.19/16	.17/16	.15/17	.13/17	.11/20	.10/20	.09/20	.08/20	.08/20
	21	.21/ 8	.21/ 8	.20/ 8	.18/18	.17/18	.15/18	.13/20	.11/20	.10/20	.09/20	.08/20	.08/20	.08/20
20	7	.56/ 8	.56/ 8	.55/ 8	.53/ 8	.50/ 7	.45/ 7	.40/ 7	.33/ 7	.25/ 7	.18/13	.12/13	.08/13	.07/13
	9	.66/ 8	.65/ 8	.63/ 8	.58/ 8	.53/ 8	.46/ 8	.38/ 7	.30/ 7	.23/13	.16/13	.12/13	.09/13	.08/13
	11	.59/ 8	.58/ 8	.55/ 8	.51/ 8	.45/ 8	.39/ 8	.32/ 8	.25/ 7	.19/13	.14/13	.11/23	.08/23	.08/23
	13	.49/ 8	.48/ 8	.46/ 8	.42/ 8	.37/ 8	.32/ 8	.26/ 8	.21/13	.16/13	.12/23	.10/23	.08/23	.08/23
	15	.40/ 8	.40/ 8	.38/ 8	.35/ 8	.31/ 8	.27/ 8	.22/13	.18/13	.14/13	.11/23	.09/23	.08/26	.07/26
	17	.34/ 8	.33/ 8	.31/ 8	.29/ 8	.26/ 8	.22/ 8	.19/13	.15/13	.12/23	.10/23	.08/26	.07/26	.07/26
	19	.28/ 8	.28/ 8	.27/ 8	.24/ 8	.22/ 8	.19/16	.16/19	.13/19	.11/23	.09/26	.08/26	.07/26	.07/26
	21	.24/ 8	.24/ 8	.23/ 8	.21/ 8	.19/18	.16/19	.14/19	.12/23	.10/23	.08/26	.07/26	.07/27	.06/27
25	7	.58/ 8	.58/ 8	.57/ 8	.56/ 8	.53/ 8	.48/ 7	.42/ 7	.35/ 7	.26/ 9	.18/17	.12/17	.08/17	.06/17
	9	.75/ 8	.74/ 8	.71/ 8	.66/ 8	.60/ 8	.52/ 8	.43/ 8	.33/ 7	.24/17	.16/17	.11/17	.07/17	.06/17
	11	.69/ 8	.68/ 8	.64/ 8	.59/ 8	.52/ 8	.45/ 8	.36/ 8	.28/ 8	.20/17	.14/17	.09/17	.07/17	.06/17
	13	.57/ 8	.56/ 8	.54/ 8	.49/ 8	.43/ 8	.37/ 8	.30/ 8	.23/17	.17/17	.12/17	.09/17	.07/17	.06/33
	15	.47/ 8	.47/ 8	.44/ 8	.40/ 8	.36/ 8	.30/ 8	.25/ 8	.19/17	.14/17	.11/17	.08/33	.06/33	.06/33
	17	.39/ 8	.39/ 8	.37/ 8	.34/ 8	.30/ 8	.25/ 8	.21/17	.16/17	.12/17	.09/33	.07/33	.06/33	.06/33
	19	.33/ 8	.32/ 8	.31/ 8	.28/ 8	.25/ 8	.21/ 8	.18/17	.14/17	.11/17	.08/33	.07/33	.06/33	.06/33
	21	.28/ 8	.28/ 8	.26/ 8	.24/ 8	.21/ 8	.18/17	.15/17	.12/17	.10/24	.08/33	.06/33	.06/33	.05/33

ASR

SHORTCRESTED
RMS VER ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
(ACC. X 100)
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	1.13/ 6	1.14/ 6	1.16/ 6	1.21/ 6	1.26/ 6	1.31/ 6	1.34/ 6	1.35/ 6	1.33/ 6	1.29/ 6	1.24/ 6	1.20/ 6	1.18/ 6
	9	.97/ 7	.97/ 7	.98/ 7	.99/ 6	1.00/ 6	1.02/ 6	1.03/ 6	1.04/ 6	1.04/ 6	1.03/ 6	1.02/ 7	1.00/ 7	.99/ 7
	11	.77/ 7	.77/ 7	.77/ 7	.76/ 7	.77/ 6	.77/ 6	.78/ 6	.78/ 6	.79/ 6	.79/ 7	.79/ 7	.79/ 7	.78/ 7
	13	.61/ 7	.61/ 7	.60/ 7	.60/ 7	.59/ 6	.59/ 6	.60/ 6	.60/ 6	.61/ 6	.61/ 7	.62/ 7	.62/ 7	.62/ 7
	15	.49/ 7	.48/ 7	.48/ 7	.47/ 7	.47/ 7	.47/ 6	.47/ 6	.47/ 6	.48/ 7	.48/ 7	.49/ 7	.49/ 7	.49/ 7
	17	.39/ 7	.39/ 7	.39/ 7	.38/ 7	.38/ 7	.38/ 6	.38/ 6	.38/ 6	.39/ 7	.39/ 7	.39/ 7	.40/ 7	.40/ 7
	19	.32/ 7	.32/ 7	.32/ 7	.31/ 7	.31/ 7	.31/ 6	.31/ 6	.31/ 6	.32/ 7	.32/ 7	.33/ 7	.33/ 7	.33/ 7
	21	.27/ 7	.27/ 7	.27/ 7	.26/ 7	.26/ 7	.26/ 6	.26/ 6	.26/ 6	.27/ 7	.27/ 7	.27/ 7	.27/ 7	.27/ 7
5	7	1.63/ 7	1.62/ 7	1.59/ 6	1.55/ 8	1.49/ 8	1.39/ 6	1.28/ 6	1.15/ 6	1.00/ 6	.87/ 6	.75/ 8	.65/ 8	.62/ 8
	9	1.45/ 7	1.44/ 7	1.39/ 7	1.33/ 7	1.24/ 7	1.13/ 6	1.01/ 6	.89/ 6	.78/ 6	.69/ 9	.61/ 9	.56/ 9	.54/ 9
	11	1.15/ 7	1.14/ 7	1.10/ 7	1.04/ 7	.96/ 7	.87/ 7	.77/ 6	.68/ 6	.60/ 9	.53/ 9	.48/10	.45/10	.44/10
	13	.90/ 7	.89/ 7	.86/ 7	.81/ 7	.74/ 7	.67/ 7	.60/ 7	.53/ 6	.47/ 9	.42/10	.39/10	.36/10	.36/10
	15	.71/ 7	.70/ 7	.68/ 7	.64/ 7	.59/ 7	.53/ 7	.47/ 7	.42/ 6	.37/10	.34/10	.31/10	.30/10	.29/10
	17	.57/ 7	.57/ 7	.54/ 7	.51/ 7	.47/ 7	.43/ 7	.38/ 7	.34/ 7	.30/10	.27/10	.26/10	.24/10	.24/10
	19	.47/ 7	.46/ 7	.45/ 7	.42/ 7	.39/ 7	.35/ 7	.31/ 7	.28/ 7	.25/10	.23/10	.21/10	.20/10	.20/10
	21	.39/ 7	.39/ 7	.37/ 7	.35/ 7	.32/ 7	.29/ 7	.26/ 7	.23/10	.21/10	.19/10	.18/11	.17/11	.17/11
10	7	1.98/ 7	1.96/ 7	1.91/ 7	1.83/ 7	1.70/ 7	1.53/ 7	1.33/ 6	1.10/ 6	.87/ 6	.66/ 6	.49/13	.37/13	.32/13
	9	1.87/ 7	1.84/ 7	1.77/ 7	1.65/ 7	1.49/ 7	1.30/ 7	1.10/ 7	.89/ 6	.69/ 6	.52/ 6	.40/13	.32/13	.29/13
	11	1.51/ 7	1.48/ 7	1.42/ 7	1.31/ 7	1.18/ 7	1.02/ 7	.85/ 7	.68/ 7	.53/ 6	.41/13	.32/13	.27/13	.25/13
	13	1.18/ 7	1.16/ 7	1.11/ 7	1.02/ 7	.92/ 7	.79/ 7	.66/ 7	.53/ 7	.41/ 6	.32/13	.26/13	.22/13	.21/13
	15	.94/ 7	.92/ 7	.88/ 7	.81/ 7	.72/ 7	.62/ 7	.52/ 7	.42/ 7	.33/13	.26/13	.21/13	.19/13	.18/13
	17	.75/ 7	.74/ 7	.70/ 7	.65/ 7	.58/ 7	.50/ 7	.42/ 7	.34/ 7	.27/13	.21/13	.18/13	.16/13	.15/13
	19	.62/ 7	.61/ 7	.58/ 7	.53/ 7	.48/ 7	.41/ 7	.34/ 7	.28/ 7	.22/13	.18/13	.15/13	.13/13	.13/13
	21	.51/ 7	.50/ 7	.48/ 7	.44/ 7	.40/ 7	.34/ 7	.29/ 7	.23/ 7	.19/13	.15/13	.13/13	.12/13	.11/13
15	7	2.30/ 7	2.27/ 7	2.21/ 7	2.10/ 7	1.94/ 7	1.72/ 7	1.46/ 7	1.17/ 6	.87/ 6	.60/ 6	.38/10	.23/10	.18/10
	9	2.32/ 7	2.28/ 7	2.18/ 7	2.02/ 7	1.81/ 7	1.55/ 7	1.27/ 7	.98/ 7	.71/ 6	.48/ 6	.31/10	.20/14	.16/14
	11	1.91/ 7	1.87/ 7	1.78/ 7	1.64/ 7	1.45/ 7	1.23/ 7	.99/ 7	.76/ 7	.55/ 7	.37/ 6	.24/14	.17/17	.14/17
	13	1.51/ 8	1.48/ 8	1.40/ 7	1.29/ 7	1.13/ 7	.96/ 7	.77/ 7	.59/ 7	.43/ 7	.29/ 6	.20/17	.14/20	.13/20
	15	1.19/ 8	1.17/ 8	1.11/ 7	1.02/ 7	.89/ 7	.76/ 7	.61/ 7	.47/ 7	.34/ 7	.23/14	.16/20	.12/20	.11/20
	17	.96/ 8	.94/ 8	.89/ 8	.82/ 7	.72/ 7	.61/ 7	.49/ 7	.37/ 7	.27/ 7	.19/17	.14/20	.11/20	.10/20
	19	.79/ 8	.77/ 8	.73/ 8	.67/ 7	.59/ 7	.50/ 7	.40/ 7	.31/ 7	.23/ 7	.16/20	.12/20	.09/20	.09/20
	21	.65/ 8	.64/ 8	.61/ 8	.56/ 7	.49/ 7	.41/ 7	.33/ 7	.26/ 7	.19/ 7	.14/20	.10/20	.08/20	.08/20
20	7	2.53/ 8	2.51/ 8	2.45/ 8	2.34/ 7	2.17/ 7	1.93/ 7	1.63/ 7	1.29/ 7	.94/ 7	.62/ 6	.35/ 7	.18/13	.12/13
	9	2.80/ 8	2.76/ 8	2.63/ 8	2.43/ 8	2.17/ 8	1.85/ 7	1.50/ 7	1.14/ 7	.79/ 7	.50/ 7	.28/13	.15/13	.10/13
	11	2.37/ 8	2.33/ 8	2.21/ 8	2.02/ 8	1.78/ 8	1.49/ 8	1.19/ 7	.89/ 7	.61/ 7	.39/ 7	.22/13	.12/13	.09/13
	13	1.89/ 8	1.86/ 8	1.76/ 8	1.60/ 8	1.40/ 8	1.17/ 8	.93/ 7	.69/ 7	.48/ 7	.30/ 7	.17/13	.10/23	.08/23
	15	1.51/ 8	1.48/ 8	1.40/ 8	1.27/ 8	1.11/ 8	.92/ 8	.73/ 7	.54/ 7	.38/ 7	.24/ 7	.14/13	.09/23	.07/23
	17	1.21/ 8	1.19/ 8	1.13/ 8	1.02/ 8	.89/ 8	.74/ 8	.59/ 7	.44/ 7	.30/ 7	.19/13	.12/23	.08/23	.07/23
	19	.99/ 8	.97/ 8	.92/ 8	.84/ 8	.73/ 8	.61/ 8	.48/ 8	.36/ 7	.25/ 7	.16/13	.10/23	.07/26	.06/26
	21	.82/ 8	.81/ 8	.76/ 8	.69/ 8	.61/ 8	.50/ 8	.40/ 8	.30/ 7	.21/ 7	.14/23	.09/26	.06/26	.05/26
25	7	2.69/ 8	2.68/ 8	2.64/ 8	2.54/ 8	2.37/ 8	2.13/ 7	1.81/ 7	1.44/ 7	1.05/ 7	.68/ 6	.37/ 9	.19/ 9	.15/ 9
	9	3.31/ 8	3.26/ 8	3.11/ 8	2.87/ 8	2.55/ 8	2.17/ 8	1.75/ 8	1.32/ 7	.91/ 7	.56/ 6	.29/17	.14/17	.11/17
	11	2.90/ 8	2.85/ 8	2.70/ 8	2.46/ 8	2.16/ 8	1.80/ 8	1.42/ 8	1.05/ 8	.71/ 7	.43/ 7	.22/17	.11/17	.08/17
	13	2.35/ 8	2.30/ 8	2.18/ 8	1.97/ 8	1.72/ 8	1.42/ 8	1.12/ 8	.82/ 8	.55/ 7	.33/ 7	.17/17	.09/17	.07/17
	15	1.88/ 8	1.84/ 8	1.74/ 8	1.57/ 8	1.37/ 8	1.13/ 8	.88/ 8	.64/ 8	.43/ 7	.26/ 7	.14/17	.08/17	.06/17
	17	1.52/ 8	1.49/ 8	1.40/ 8	1.27/ 8	1.10/ 8	.91/ 8	.71/ 8	.52/ 8	.35/ 7	.21/ 7	.12/17	.07/33	.05/33
	19	1.24/ 8	1.22/ 8	1.15/ 8	1.04/ 8	.90/ 8	.74/ 8	.58/ 8	.42/ 8	.28/ 7	.17/ 7	.10/17	.06/33	.05/33

ASR

SHORTCRESTED

RMS LON DISP IN FEET/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.05/ 8	.05/ 8	.05/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8
	9	.08/10	.08/10	.07/10	.07/10	.06/10	.05/10	.05/10	.05/10	.05/10	.06/10	.06/10	.06/10	.07/10
	11	.10/12	.10/12	.09/12	.08/12	.07/12	.07/12	.06/12	.06/12	.07/12	.07/12	.08/12	.08/12	.08/12
	13	.12/14	.12/14	.11/14	.10/14	.09/14	.07/14	.07/14	.07/14	.07/14	.08/14	.09/14	.09/14	.10/14
	15	.13/16	.13/16	.12/16	.11/16	.09/16	.08/16	.07/16	.07/16	.08/16	.09/16	.10/16	.10/16	.10/16
	17	.14/18	.14/18	.13/18	.11/18	.10/18	.09/18	.08/18	.08/18	.08/18	.09/18	.10/18	.11/18	.11/18
	19	.14/18	.14/18	.13/18	.12/18	.10/18	.09/18	.08/18	.08/18	.09/18	.10/18	.11/18	.11/18	.11/18
	21	.15/21	.15/21	.14/21	.12/21	.11/21	.09/21	.08/21	.08/21	.09/21	.10/21	.11/21	.12/21	.12/21
5	7	.04/ 7	.04/ 7	.04/ 7	.04/ 6	.04/ 6	.04/ 8	.04/ 9	.04/10	.05/10	.06/10	.07/10	.07/10	.07/10
	9	.06/10	.06/10	.06/10	.05/10	.05/10	.05/10	.05/11	.06/11	.08/11	.09/11	.10/11	.11/11	.12/11
	11	.08/13	.08/13	.07/13	.06/13	.06/12	.05/12	.06/13	.07/13	.09/13	.11/13	.13/13	.14/13	.14/13
	13	.09/14	.09/14	.08/14	.08/14	.07/14	.06/14	.07/14	.08/14	.10/15	.12/15	.14/15	.16/15	.16/15
	15	.10/16	.10/16	.10/16	.09/16	.08/16	.07/16	.07/16	.09/16	.11/17	.13/17	.15/17	.17/17	.17/17
	17	.11/18	.11/18	.10/18	.09/18	.08/18	.07/18	.07/18	.09/18	.11/18	.14/19	.16/19	.17/19	.18/19
	19	.12/21	.12/21	.11/21	.10/21	.09/21	.08/21	.08/20	.09/20	.11/20	.14/20	.16/20	.17/20	.18/20
	21	.13/21	.12/21	.12/21	.10/21	.09/21	.08/21	.08/21	.09/22	.12/22	.14/22	.16/22	.18/22	.18/22
10	7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.05/12	.06/13	.08/13	.10/13	.12/13	.14/13	.15/13	.15/13
	9	.05/10	.05/10	.05/10	.05/10	.05/11	.06/12	.08/13	.11/13	.14/13	.16/13	.19/13	.20/13	.21/13
	11	.06/13	.06/13	.06/13	.06/13	.06/13	.07/13	.09/14	.12/14	.15/14	.18/14	.21/15	.23/15	.23/15
	13	.07/14	.07/14	.07/14	.06/14	.06/14	.07/15	.09/15	.13/16	.16/16	.19/16	.22/16	.24/16	.24/16
	15	.09/16	.08/16	.08/16	.07/16	.07/16	.08/17	.10/17	.13/17	.16/17	.19/18	.22/18	.24/18	.25/18
	17	.09/18	.09/18	.09/18	.08/18	.08/18	.08/18	.10/18	.13/19	.16/20	.19/20	.22/20	.24/20	.24/20
	19	.10/21	.10/21	.09/21	.09/21	.08/21	.08/21	.10/21	.13/21	.16/22	.19/22	.22/22	.24/22	.24/22
	21	.11/21	.11/21	.10/21	.09/21	.09/21	.09/21	.10/22	.13/23	.16/23	.19/24	.22/24	.23/24	.24/24
15	7	.04/ 7	.04/ 7	.04/ 7	.04/ 7	.05/14	.08/14	.13/14	.19/17	.26/20	.33/20	.38/20	.41/20	.42/20
	9	.05/ 7	.05/ 7	.05/ 7	.05/11	.05/14	.09/14	.14/17	.20/17	.27/17	.34/20	.39/20	.43/20	.44/20
	11	.05/13	.05/13	.05/13	.05/13	.06/14	.09/17	.14/17	.20/17	.26/20	.33/20	.38/20	.41/20	.42/20
	13	.06/14	.06/14	.06/14	.06/14	.06/14	.09/17	.13/17	.19/20	.25/20	.31/20	.36/20	.39/20	.40/20
	15	.07/16	.07/16	.07/16	.06/16	.07/17	.09/17	.13/17	.18/20	.24/20	.29/20	.34/20	.37/20	.38/20
	17	.08/18	.08/18	.08/18	.07/18	.07/18	.09/17	.12/20	.17/20	.22/20	.28/20	.32/20	.34/20	.35/20
	19	.09/21	.09/21	.08/21	.08/21	.08/21	.09/21	.12/20	.16/20	.21/20	.26/20	.30/20	.32/20	.33/20
	21	.10/21	.09/21	.09/21	.08/21	.08/21	.09/22	.12/23	.16/24	.21/24	.25/20	.29/20	.31/20	.32/20
20	7	.04/ 8	.04/ 8	.04/ 8	.04/13	.07/13	.13/19	.20/19	.27/19	.34/19	.40/39	.46/39	.49/42	.50/42
	9	.05/ 8	.05/ 8	.04/ 8	.05/13	.07/19	.13/19	.20/19	.29/19	.37/23	.44/27	.51/27	.55/27	.56/27
	11	.05/13	.05/13	.05/13	.05/13	.07/19	.12/19	.20/23	.28/23	.37/23	.45/23	.51/26	.56/26	.57/26
	13	.05/14	.05/14	.05/14	.05/13	.07/19	.12/19	.18/23	.26/23	.35/23	.43/26	.49/26	.54/26	.55/26
	15	.06/16	.06/16	.06/16	.06/16	.07/19	.11/23	.17/23	.25/23	.33/26	.40/26	.46/26	.50/26	.52/26
	17	.07/18	.07/18	.07/18	.06/18	.07/19	.11/23	.16/23	.23/23	.30/26	.38/26	.43/26	.47/26	.48/26
	19	.08/21	.08/21	.07/21	.07/21	.07/19	.10/23	.15/23	.22/26	.28/26	.35/26	.40/26	.44/27	.45/27
	21	.08/21	.08/21	.08/21	.07/21	.08/22	.10/23	.14/23	.20/26	.27/26	.33/27	.38/27	.41/27	.42/27
25	7	.04/ 8	.04/ 8	.04/ 8	.06/17	.11/17	.18/17	.26/17	.33/17	.40/17	.46/17	.50/**	.53/**	.54/**
	9	.05/ 8	.05/ 8	.04/ 8	.06/17	.11/17	.18/17	.27/17	.36/17	.45/17	.53/45	.60/45	.64/45	.66/45
	11	.05/ 8	.05/ 8	.04/ 8	.05/17	.10/17	.17/17	.26/24	.36/24	.46/33	.55/33	.63/33	.68/33	.69/33
	13	.05/14	.05/14	.05/14	.05/17	.09/17	.16/24	.24/24	.35/33	.45/33	.55/33	.62/33	.68/33	.69/33
	15	.06/16	.05/16	.05/16	.06/17	.08/17	.14/24	.23/24	.32/33	.43/33	.52/33	.60/33	.65/33	.67/33
	17	.06/18	.06/18	.06/18	.06/17	.08/24	.13/24	.21/30	.30/33	.40/33	.49/33	.56/33	.61/33	.63/33
	19	.07/21	.07/21	.06/21	.06/21	.08/24	.12/24	.19/30	.28/33	.37/33	.45/33	.52/33	.57/33	.58/33
	21	.08/21	.07/21	.07/21	.07/21	.08/24	.12/24	.18/30	.26/33	.34/33	.42/33	.49/33	.53/33	.54/33

ASR

SHORTCRESTED
RMS LON VEL IN FPS/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS
ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8	.04/ 8
	9	.05/10	.05/10	.05/10	.05/10	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.04/ 9	.05/ 9	.05/ 9
	11	.06/10	.06/10	.06/10	.05/10	.05/10	.04/10	.04/10	.04/10	.04/10	.04/10	.05/10	.05/10	.05/10
	13	.06/13	.06/13	.06/13	.05/13	.05/13	.04/13	.04/13	.04/13	.04/13	.04/13	.05/13	.05/13	.05/13
	15	.06/14	.06/14	.06/14	.05/14	.05/14	.04/14	.04/14	.04/14	.04/14	.04/14	.05/14	.05/14	.05/14
	17	.06/16	.06/16	.06/16	.05/16	.04/16	.04/16	.03/16	.03/16	.04/16	.04/16	.04/16	.05/16	.05/16
	19	.06/18	.06/18	.05/18	.05/18	.04/18	.04/18	.03/18	.03/18	.04/18	.04/18	.04/18	.04/18	.05/18
	21	.05/18	.05/18	.05/18	.04/18	.04/18	.03/18	.03/18	.03/18	.03/18	.04/18	.04/18	.04/18	.04/18
5	7	.05/ 6	.05/ 6	.05/ 6	.04/ 6	.04/ 6	.04/ 6	.04/ 6	.04/ 9	.04/10	.04/10	.05/10	.05/10	.05/10
	9	.05/10	.05/10	.05/10	.05/10	.04/10	.04/10	.04/10	.04/10	.05/11	.05/11	.06/11	.07/11	.07/11
	11	.05/11	.05/11	.05/11	.05/11	.04/11	.04/11	.04/12	.04/12	.05/12	.06/12	.07/12	.07/12	.07/12
	13	.06/13	.05/13	.05/13	.05/13	.04/13	.04/13	.04/13	.04/13	.05/13	.06/13	.07/13	.07/13	.08/13
	15	.05/14	.05/14	.05/14	.05/14	.04/14	.04/14	.03/14	.04/15	.05/15	.06/15	.07/16	.07/16	.07/16
	17	.05/16	.05/16	.05/16	.04/16	.04/16	.03/16	.03/16	.04/17	.05/17	.05/17	.06/17	.07/17	.07/17
	19	.05/18	.05/18	.05/18	.04/18	.04/18	.03/18	.03/18	.03/18	.04/18	.05/18	.06/19	.06/19	.07/19
	21	.05/18	.05/18	.05/18	.04/18	.04/18	.03/19	.03/20	.03/20	.04/20	.05/20	.06/20	.06/20	.08/20
10	7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/12	.05/13	.06/13	.06/13	.07/13	.07/13	.07/13
	9	.06/ 7	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.05/12	.05/13	.06/13	.07/13	.08/13	.09/13	.09/13	.10/13
	11	.05/12	.05/12	.05/11	.05/11	.04/12	.04/13	.05/13	.06/13	.07/13	.08/13	.09/13	.10/14	.10/14
	13	.05/13	.05/13	.05/13	.04/13	.04/13	.04/14	.05/14	.06/15	.07/15	.08/15	.09/15	.10/15	.10/15
	15	.05/14	.05/14	.05/14	.04/14	.04/14	.04/15	.04/16	.05/16	.06/16	.08/17	.08/17	.09/17	.09/17
	17	.05/16	.05/16	.05/16	.04/16	.04/16	.04/17	.04/17	.05/17	.06/18	.07/18	.08/18	.08/18	.09/18
	19	.05/18	.05/18	.04/18	.04/18	.04/18	.03/18	.04/18	.05/19	.06/20	.07/20	.07/20	.08/20	.08/20
	21	.05/21	.04/21	.04/21	.04/21	.03/21	.03/20	.04/20	.04/21	.05/21	.06/21	.07/22	.07/22	.08/22
15	7	.06/ 7	.06/ 7	.06/ 7	.05/ 7	.05/ 7	.05/14	.06/14	.07/14	.08/17	.09/17	.10/20	.11/20	.11/20
	9	.06/ 7	.06/ 7	.06/ 7	.05/ 7	.05/14	.05/14	.06/17	.07/17	.09/17	.11/17	.12/20	.13/20	.13/20
	11	.05/ 7	.05/ 7	.05/ 7	.05/ 7	.04/14	.05/14	.06/17	.07/17	.09/17	.11/20	.12/20	.13/20	.13/20
	13	.05/14	.05/14	.05/14	.04/14	.04/14	.04/17	.05/17	.07/17	.08/20	.10/20	.11/20	.12/20	.13/20
	15	.05/16	.05/16	.04/16	.04/16	.04/14	.04/17	.05/17	.06/17	.08/20	.09/20	.11/20	.11/20	.12/20
	17	.05/16	.05/16	.04/16	.04/16	.04/16	.04/17	.05/17	.06/20	.07/20	.08/20	.10/20	.10/20	.11/20
	19	.04/18	.04/18	.04/18	.04/18	.03/18	.04/17	.04/17	.05/20	.06/20	.08/20	.09/20	.09/20	.10/20
	21	.04/21	.04/21	.04/21	.04/21	.03/21	.03/21	.04/20	.05/20	.06/20	.07/20	.08/20	.09/20	.09/20
20	7	.06/ 8	.06/ 8	.06/ 8	.05/ 7	.05/13	.06/13	.06/13	.07/13	.07/13	.08/19	.08/19	.08/19	.08/19
	9	.06/ 8	.06/ 8	.06/ 8	.06/ 8	.05/13	.06/19	.07/19	.08/19	.09/19	.10/19	.11/23	.11/23	.11/23
	11	.06/ 8	.06/ 8	.05/ 8	.05/ 8	.05/19	.05/19	.06/19	.08/23	.09/23	.11/23	.12/23	.12/23	.13/23
	13	.05/ 8	.05/ 8	.05/ 8	.04/13	.04/19	.05/19	.06/23	.07/23	.09/23	.11/23	.12/26	.13/26	.13/26
	15	.05/16	.05/16	.04/16	.04/16	.04/19	.04/19	.05/23	.07/23	.08/23	.10/26	.11/26	.12/26	.12/26
	17	.04/16	.04/16	.04/16	.04/15	.04/19	.04/19	.05/23	.06/23	.08/23	.09/26	.10/26	.11/26	.11/26
	19	.04/18	.04/18	.04/18	.04/18	.03/19	.04/19	.05/23	.06/23	.07/26	.09/26	.10/26	.10/26	.11/26
	21	.04/21	.04/21	.04/21	.03/21	.03/19	.03/23	.04/23	.05/23	.07/26	.08/26	.09/26	.10/26	.10/26
25	7	.06/ 8	.06/ 8	.06/ 8	.06/17	.06/17	.06/17	.06/17	.07/17	.07/17	.08/17	.08/17	.08/17	.08/17
	9	.07/ 8	.07/ 8	.06/ 8	.06/17	.06/17	.06/17	.07/17	.08/17	.08/17	.09/17	.09/17	.10/17	.10/17
	11	.06/ 8	.06/ 8	.06/ 8	.05/17	.05/17	.06/17	.07/17	.08/17	.09/17	.10/17	.11/33	.11/33	.11/33
	13	.05/ 8	.05/ 8	.05/ 8	.05/17	.05/17	.05/17	.06/17	.08/24	.09/33	.10/33	.11/33	.12/33	.12/33
	15	.05/ 8	.05/ 8	.04/16	.04/17	.04/17	.05/17	.06/24	.07/33	.09/33	.10/33	.11/33	.12/33	.12/33
	17	.04/18	.04/18	.04/18	.04/17	.04/17	.04/24	.05/24	.07/33	.08/33	.10/33	.11/33	.12/33	.12/33
	19	.04/18	.04/18	.04/18	.03/17	.03/17	.04/24	.05/24	.06/33	.08/33	.09/33	.10/33	.11/33	.11/33
	21	.04/21	.04/21	.04/21	.03/21	.03/17	.04/24	.04/30	.06/33	.07/33	.08/33	.09/33	.10/33	.10/33

ASR

SHORTCRESTED

RMS LON ACC IN G'S/ENCOUNTERED MODAL PERIOD, T_{OE}, IN SECONDS

(ACC. X 100)

ROLLER CHOCK - 8.0 FT AFT OF AP, ON CL, AND 26.07 FT ABOVE KEEL

V	TO	SHIP HEADING ANGLE IN DEGREES												
		0	15	30	45	60	75	90	105	120	135	150	165	180
0	7	.12/ 8	.12/ 8	.12/ 7	.12/ 5	.13/ 5	.13/ 5	.13/ 5	.12/ 5	.12/ 5	.12/ 5	.11/ 8	.11/ 8	.11/ 8
	9	.13/ 9	.13/ 9	.12/ 9	.12/ 9	.11/ 9	.11/ 8	.11/ 8	.10/ 8	.11/ 8	.11/ 8	.11/ 8	.11/ 8	.11/ 8
	11	.13/10	.12/10	.12/10	.11/10	.10/10	.09/10	.09/10	.09/10	.09/10	.10/10	.10/10	.11/10	.11/10
	13	.12/11	.11/11	.11/11	.10/11	.09/11	.08/11	.08/10	.08/10	.08/10	.09/10	.09/10	.10/11	.10/11
	15	.10/13	.10/13	.10/13	.09/13	.08/13	.07/13	.07/13	.07/13	.07/13	.08/13	.08/13	.08/13	.09/13
	17	.09/14	.09/14	.09/14	.08/14	.07/14	.06/14	.06/14	.06/14	.06/14	.07/14	.07/14	.07/14	.08/14
	19	.08/14	.08/14	.08/14	.07/14	.06/14	.05/14	.05/14	.05/14	.05/14	.06/14	.06/14	.07/14	.07/14
	21	.07/16	.07/16	.07/16	.06/16	.05/16	.05/16	.04/16	.04/16	.05/16	.05/16	.06/16	.06/16	.06/16
5	7	.17/ 6	.17/ 6	.17/ 6	.17/ 6	.16/ 6	.15/ 6	.13/ 6	.12/ 5	.11/ 9	.10/ 9	.10/10	.10/10	.10/10
	9	.16/ 6	.16/ 6	.15/ 6	.14/ 6	.13/ 6	.12/ 6	.11/ 6	.10/10	.10/10	.11/10	.12/10	.13/10	.13/10
	11	.14/10	.14/10	.13/10	.12/10	.11/10	.10/10	.09/10	.09/11	.09/11	.11/11	.12/12	.12/12	.13/12
	13	.12/12	.12/12	.12/12	.11/11	.09/11	.08/11	.08/12	.08/12	.08/12	.10/13	.11/13	.12/13	.12/13
	15	.11/13	.11/13	.10/13	.09/13	.08/13	.07/13	.07/13	.07/13	.07/13	.09/13	.10/13	.10/13	.11/13
	17	.10/14	.09/14	.09/14	.08/14	.07/14	.06/14	.06/14	.06/14	.07/14	.08/14	.09/15	.09/15	.09/15
	19	.08/16	.08/16	.08/16	.07/16	.06/16	.05/16	.05/15	.05/16	.06/16	.07/16	.08/16	.08/16	.08/16
	21	.07/16	.07/16	.07/16	.06/16	.05/16	.05/16	.04/16	.04/17	.05/17	.06/17	.07/17	.07/17	.07/17
10	7	.23/ 7	.23/ 7	.22/ 7	.21/ 7	.19/ 7	.17/ 6	.15/ 6	.13/13	.12/13	.12/13	.12/13	.12/13	.12/13
	9	.21/ 7	.20/ 7	.19/ 7	.18/ 7	.16/ 7	.15/ 7	.13/12	.12/13	.12/13	.13/13	.13/13	.14/13	.14/13
	11	.17/ 7	.17/ 7	.16/ 7	.15/ 7	.13/ 7	.12/ 7	.11/13	.11/13	.11/13	.12/13	.13/13	.14/13	.14/13
	13	.14/ 7	.14/ 7	.13/ 7	.12/ 7	.11/ 7	.10/13	.09/13	.09/13	.10/13	.11/14	.12/14	.13/14	.13/14
	15	.12/13	.12/13	.11/13	.10/13	.09/13	.08/13	.08/14	.08/14	.09/15	.10/15	.11/15	.11/15	.12/15
	17	.10/14	.10/14	.10/14	.09/14	.08/14	.07/14	.07/15	.07/15	.08/15	.09/16	.10/16	.10/16	.10/16
	19	.09/16	.09/16	.08/16	.08/16	.07/16	.06/16	.06/16	.06/16	.07/17	.08/17	.08/17	.09/17	.09/17
	21	.08/16	.08/16	.07/16	.07/16	.06/16	.05/16	.05/17	.05/17	.06/17	.07/17	.07/18	.08/18	.08/18
15	7	.26/ 7	.26/ 7	.25/ 7	.24/ 7	.22/ 7	.19/ 7	.17/14	.14/14	.12/14	.11/14	.11/17	.11/17	.11/17
	9	.25/ 7	.25/ 7	.23/ 7	.22/ 7	.19/ 7	.17/ 7	.15/14	.13/14	.12/17	.13/17	.13/17	.14/17	.14/17
	11	.20/ 7	.20/ 7	.19/ 7	.17/ 7	.15/ 7	.13/ 7	.12/17	.11/17	.11/17	.12/17	.13/20	.14/20	.14/20
	13	.17/ 7	.16/ 7	.15/ 7	.14/ 7	.12/ 7	.11/14	.10/17	.10/17	.10/17	.11/20	.12/20	.13/20	.13/20
	15	.14/ 7	.13/ 7	.13/ 7	.12/ 7	.10/ 7	.09/14	.08/17	.08/17	.09/20	.10/20	.11/20	.11/20	.12/20
	17	.12/ 7	.11/ 7	.11/ 7	.10/ 7	.09/14	.08/14	.07/17	.07/17	.08/20	.09/20	.10/20	.10/20	.10/20
	19	.10/ 7	.10/16	.09/16	.08/16	.07/16	.06/17	.06/17	.06/17	.07/20	.08/20	.08/20	.09/20	.09/20
	21	.09/18	.08/18	.08/18	.07/16	.06/16	.06/17	.05/17	.05/20	.06/20	.07/20	.07/20	.08/20	.08/20
20	7	.28/ 7	.28/ 7	.27/ 7	.26/ 7	.23/ 7	.21/ 7	.18/13	.14/13	.11/13	.09/13	.08/13	.07/13	.07/13
	9	.29/ 8	.28/ 8	.27/ 8	.25/ 8	.22/ 7	.19/ 7	.16/13	.13/19	.11/19	.10/19	.09/19	.09/19	.09/19
	11	.24/ 8	.23/ 8	.22/ 8	.20/ 8	.17/ 8	.15/ 7	.13/19	.11/19	.10/19	.10/23	.10/23	.10/23	.10/23
	13	.19/ 8	.19/ 8	.18/ 8	.16/ 8	.14/ 8	.12/19	.10/19	.09/19	.09/23	.09/23	.10/23	.10/23	.10/23
	15	.15/ 8	.15/ 8	.14/ 8	.13/ 8	.11/ 8	.10/19	.09/19	.08/23	.08/23	.09/23	.09/23	.10/26	.10/26
	17	.13/ 8	.13/ 8	.12/ 8	.11/ 8	.09/ 8	.08/19	.07/19	.07/23	.07/23	.08/26	.08/26	.09/26	.09/26
	19	.11/ 8	.11/ 8	.10/ 8	.09/ 8	.08/ 8	.07/19	.06/23	.06/23	.06/23	.07/26	.08/26	.08/26	.08/26
	21	.09/ 8	.09/ 8	.09/ 8	.08/ 8	.07/19	.06/19	.05/23	.05/23	.06/23	.06/26	.07/26	.07/26	.07/26
25	7	.29/ 8	.29/ 8	.28/ 8	.27/ 8	.24/ 7	.22/17	.18/17	.15/17	.12/17	.09/17	.07/17	.07/17	.07/17
	9	.32/ 8	.32/ 8	.30/ 8	.27/ 8	.24/ 8	.21/17	.17/17	.13/17	.10/17	.09/17	.07/17	.07/17	.07/17
	11	.27/ 8	.27/ 8	.25/ 8	.23/ 8	.20/ 8	.17/17	.14/17	.11/17	.09/17	.08/17	.08/17	.08/17	.08/17
	13	.22/ 8	.21/ 8	.20/ 8	.18/ 8	.16/ 8	.13/17	.11/17	.09/17	.08/17	.08/17	.08/33	.08/33	.08/33
	15	.18/ 8	.17/ 8	.16/ 8	.15/ 8	.13/ 8	.11/17	.09/17	.08/17	.07/17	.07/33	.08/33	.08/33	.08/33
	17	.14/ 8	.14/ 8	.13/ 8	.12/ 8	.10/ 8	.09/17	.08/17	.07/17	.07/33	.07/33	.07/33	.08/33	.08/33
	19	.12/ 8	.12/ 8	.11/ 8	.10/ 8	.09/17	.07/17	.06/17	.06/17	.06/33	.06/33	.07/33	.07/33	.07/33

DTNSRDC ISSUES THREE TYPES OF REPORTS

1. DTNSRDC REPORTS, A FORMAL SERIES, CONTAIN INFORMATION OF PERMANENT TECHNICAL VALUE. THEY CARRY A CONSECUTIVE NUMERICAL IDENTIFICATION REGARDLESS OF THEIR CLASSIFICATION OR THE ORIGINATING DEPARTMENT.

2. DEPARTMENTAL REPORTS, A SEMIFORMAL SERIES, CONTAIN INFORMATION OF A PRELIMINARY, TEMPORARY, OR PROPRIETARY NATURE OR OF LIMITED INTEREST OR SIGNIFICANCE. THEY CARRY A DEPARTMENTAL ALPHANUMERICAL IDENTIFICATION.

3. TECHNICAL MEMORANDA, AN INFORMAL SERIES, CONTAIN TECHNICAL DOCUMENTATION OF LIMITED USE AND INTEREST. THEY ARE PRIMARILY WORKING PAPERS INTENDED FOR INTERNAL USE. THEY CARRY AN IDENTIFYING NUMBER WHICH INDICATES THEIR TYPE AND THE NUMERICAL CODE OF THE ORIGINATING DEPARTMENT. ANY DISTRIBUTION OUTSIDE DTNSRDC MUST BE APPROVED BY THE HEAD OF THE ORIGINATING DEPARTMENT ON A CASE-BY-CASE BASIS.